



SMART LVL14

DESIGN GUIDE EDITION 1

2026

SMARTFRAME[®]
BY TILLING

SmartLVL® 14 Design Guide

Scope of this publication

This Design Guide and Load Tables assist in the selection of SmartLVL® 14 beams for most of the common structural arrangements met in domestic construction.

Methods of developing lateral restraint and providing adequate support, adequate anchorage against wind uplift, and overall structural stability are outside the scope of this publication, however some limited examples have been reproduced within this document.

Information on the above matters can be obtained from AS 1684 Residential timber-framed construction or from a structural engineer experienced in timber construction.

Tilling Timber Pty Ltd have structural engineers at the Smart-Frame Design Centre who can be contacted for advice on matters concerning the use of its engineered timber products in timber construction at techsupport@tilling.com.au or on the Techsupport Helpline 1300 668 690.

Substitution of other products

All load tables in this document are designed using in-grade test-properties of SmartLVL as distributed by Tilling Timber Pty Ltd. Other manufacturer's LVL may have different properties and therefore cannot be designed using these span tables.

Copyright

Copyright of this publication remains the property of Tilling Timber Pty Ltd, and reproduction of the whole or part of this publication without written permission from Tilling Timber Pty Ltd is prohibited.

Certification

As a professional engineer, qualified and experienced in timber engineering, I certify that the use of the SmartLVL members as shown in these tables, and installed in accordance with the provisions of this Design Guide, complies to the National Construction Code (NCC). These span tables have been prepared in accordance with standard engineering principles, the relevant test reports and Australian standards, ie:

- AS 1720.3 Design criteria for timber-framed residential buildings
- AS 1720.1 Timber structures - design methods
- AS 4055 Wind loads for houses
- AS/NZS 4357 Structural laminated veneer lumber
- AS/NZS 4063 Characterisation of structural timber



Ray Schneider, BEng(Civil), PE0003119
Principal Structural Engineer-SmartFrame

INDEX

Scope of publication

1. SmartLVL

1.1 Design/effective span	1
1.2 Continuous spans	1
1.3 Rip sawing SmartLVL	2
1.4 Multiple section SmartLVL	
.1 nailed	2
.2 Type 17 screws	3
.3 bolts	4
1.5 On-site cutting and notching	4
1.6 Steel and timber post fixing	7
1.7 Fire resistance	8
1.8 Roof construction detailing	8
1.9 Lateral restraint of roof beams	9
1.10 Chemical resistance	9
1.11 Durability and exposure to moisture	
Timber EMC Zones in Australia	10
Predicted EMC range by city	11
.1 Basis of EMC zone maps	12
.2 LVL Durability and moisture	12
.3 Dimensional change	12
.4 Changes in strength	13
.5 Design for durability	14
.6 Preservative treatment	14
.7 Fasteners for H3 LVL	15
.8 Painting of treated LVL	15
.9 Deck bearers and joists	16
1.12 Deck ledger attachment	16
1.13 Designing with SmartLVL 14	17
1.14 Storage and handling	17
1.15 SmartLVL hanger details	18

2. Span Tables

Index of span tables	19
----------------------	----



1. SmartLVL® 14

Description

SmartLVL 14 is a structural Laminated Veneer Lumber (LVL) manufactured by toll manufacturers for Tilling Timber to meet the quality controlled process requirements of AS/NZS 4357 - Structural Laminated Veneer Lumber.

Sustainability



SmartLVL is manufactured from wood fibre from sustainably managed forests and is produced under a chain of custody system certified to comply with the PEFC International Standard – Chain of Custody of Forest Based Products –

Requirements (PEFC ST 2002:2103) Certificate No SCS-PEFC-COC-004061.

Quality



Compliance with process based quality control requirements is third party audited by CMI Certification Pty Ltd, a JAS-ANZ accredited Product Certification Body and the audits, together with end product testing is used as the basis for CMI ProdCert certificates PC10101 and PC10096.



Preservative Treatment options



Stock SmartLVL is H2s (glue line) treated for use South of the Tropic of Capricorn. It can be post- production pressure treated to H2 or H3 to AS/NZS 1604. (see page 11)

Short term water repellency



SmartLVL comes with a clear **new generation** short term water repellency H₂O Shield™ to replace the old fashioned wax sealers used by most other LVL manufacturers. H₂O Shield™ is a water-based sealer specifically formulated for SmartFrame EWP.

H₂O™ shield offers numerous key benefits:

- High-penetrating surface treatment
- Formulated to repel rain during storage and construction
- Includes a biocide/fungicide
- Paintable - acrylic and oil based coatings
- Glueable – using standard construction adhesives between the LVL and wood or plaster products
- When transporting or walking on the LVL, it does not become slippery like the wax surface coating
- Environmentally friendly

Users will notice that the new sealer absorbs into the wood instead of leaving a film on top of the surfaces, which is the key to its added benefits.

1.1 SmartLVL Design/effective span

Normal structural analysis uses the centreline representation of the member. The term “span” can be defined in a number of ways and these are defined as follows:

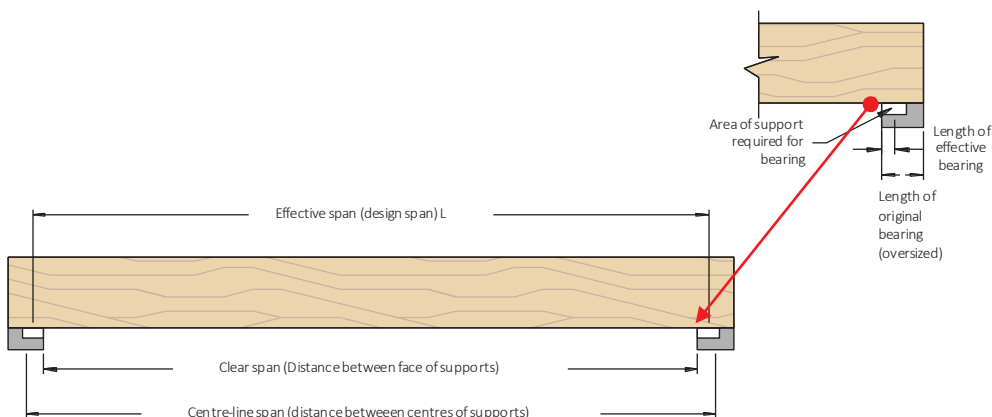
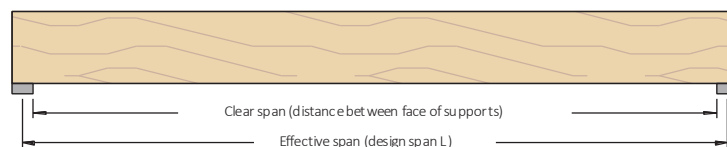
Clear Span. This is the distance between the faces of any support. It is generally the one easiest to measure and read from the drawings

Nominal span/centre-line span. This is the distance between the centre of the supports. This span is used to determine bending moments and deflections for continuous spanning members

Diagram (a) shows beam where bearings have been designed appropriately. The effective span is taken as the distance between the centre of each bearing area

Diagram (b) shows beam where bearings at each end have been oversized. (This is frequently the case for beams that bear onto brickwork or concrete walls where the thickness of the wall is in excess of the area required to give the beam bearing capacity). To find the correct effective span:

- Calculate the minimum bearing required to carry the loads satisfactorily
- Add minimum bearing length to “clear span” distance.

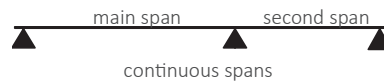


1.2 Continuous spans

For beams continuous over two (2) unequal spans, the design span and the "Resultant Span Description" depend upon the percentage difference between the two spans as shown below:

Span Difference %	Effective span	Resultant span Description
10% max	Main span	Continuous
10 - 30%	1.1 x Main span	Continuous
above 30%	Main span	Single

$$\text{span difference} = \frac{(\text{main span} - \text{second span})}{(\text{main span} + \text{second span})} \times 100$$



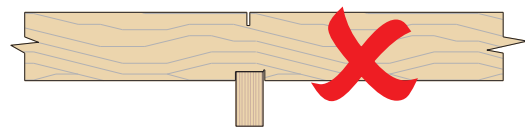
Note, for continuous spans, the Design Span is taken as the distance between the centre of the supports, as shown in "Design Span" on page 1 of the Design Guide.

1.3 Rip sawing SmartLVL 14

One of the unique properties of Smart LVL is that it may be ripped through the depth to the smaller section sizes as those given in these span tables without affecting the basic strength properties. It is important that the new members are not cut undersized if the maximum spans in these tables are to be used.



The sawing through the thickness to produce sections of a lesser thickness may decrease the integrity of the SmartLVL and is therefore NOT recommended under any circumstances.



Joist and bearer span tables do NOT allow for the practice of notching the top of the member over a support

1.4 Multiple SmartLVL 14 section beams

Vertical laminations may be achieved by adopting the procedures described in clause 2.3 of AS1684, however these procedures should be considered as the minimum requirements to achieve the desired effect.

Experience with SmartLVL 14 beams indicates that this degree of fixing may not satisfactorily prevent cupping of individual components as a result of the ingress of moisture between laminates during construction.

The suggested methods of vertical lamination below provide a

greater level of fixity between individual components, and with the use of an elastomeric adhesive, also prevents moisture penetration between the laminates.

Maximum floor load width tables for multiple member laminations of SmartLVL 14:

1. Nail lamination
2. Type 17 screw lamination
3. Bolt lamination

are shown below

1. Nailing

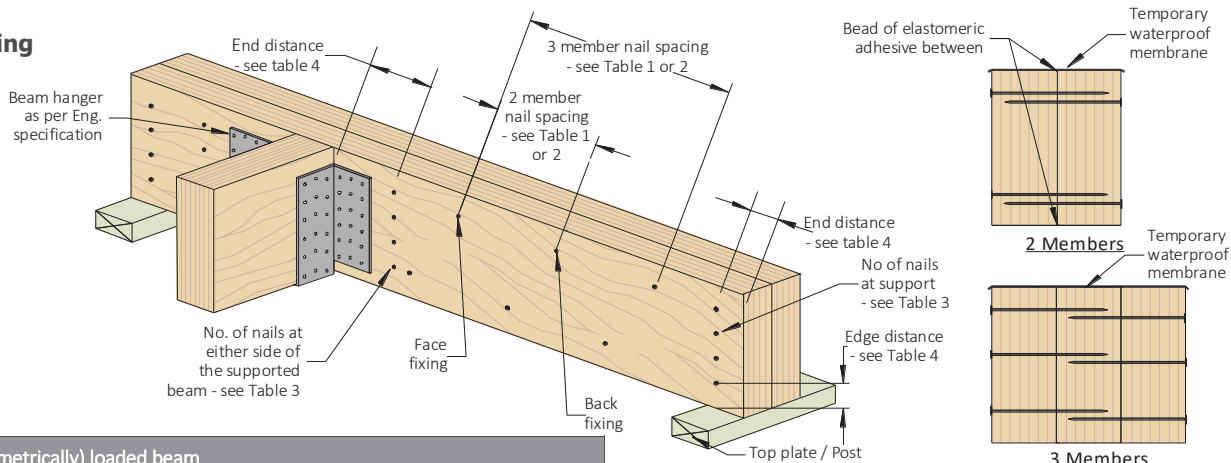


Table 1

Top (symmetrically) loaded beam			
Section width	Nail type	No of nail rows (both sides)	Nail spacing (mm)
2/35	3.15 x 65	2 or 3*	300
3/35 & 2/45	3.30 x 90	2 or 3*	300
2/42	3.06 x 75	2 or 3*	200
3/42, 3/45 & 2/58 3/58, 2/65 & 3/65	Nail lamination is not suitable, requires screws or bolts		

* Beam depth $\geq$ 300 mm 3 rows of nails

Note: Addition Tables 2,3 and 4 are on next page

1. Nailing (cont'd)

Table 2

Side (non-symmetrically) loaded beam					
Section width	Nail type	No of nail rows at 300mm ctrs (both sides)	Max. floor joist span supported by outer member (mm)*	No of nail rows at 300mm ctrs (both sides)	Max. floor joist span supported by outer member (mm)*
2/35	3.15 x 65	2	2150	3	3250
3/35	3.30 x 90	2	5100	3	7600
2/45	3.30 x 90	2	2550	3	3800
2/42	3.06 x 75	2	2300	3	3400
3/42 & 3/45	3.30 x 90	2	2550	3	3800
2/58 & 3/58	3.30 x 100	2	2500	3	3800
2/65 & 3/65	3.30 x 100	2	1350	3	2050

* Floor loads $G = 62 \text{ kg/m}^2$, $Q = 1.5 \text{ kPa}$

Table 3

Beam depth (mm)	Min. number of nails required	
	At support	At either side of supported beam
90 – 150	3	3
160 – 300	5	6
> 300	6	8

Table 4

Nail dia. (mm)	Min. edge distance (mm)	Min. end distance (mm)	Min. distance between nails (across the grain) (mm)
3.06 & 3.15	20	70	40
3.30	20	75	45

2. Type 17 screws

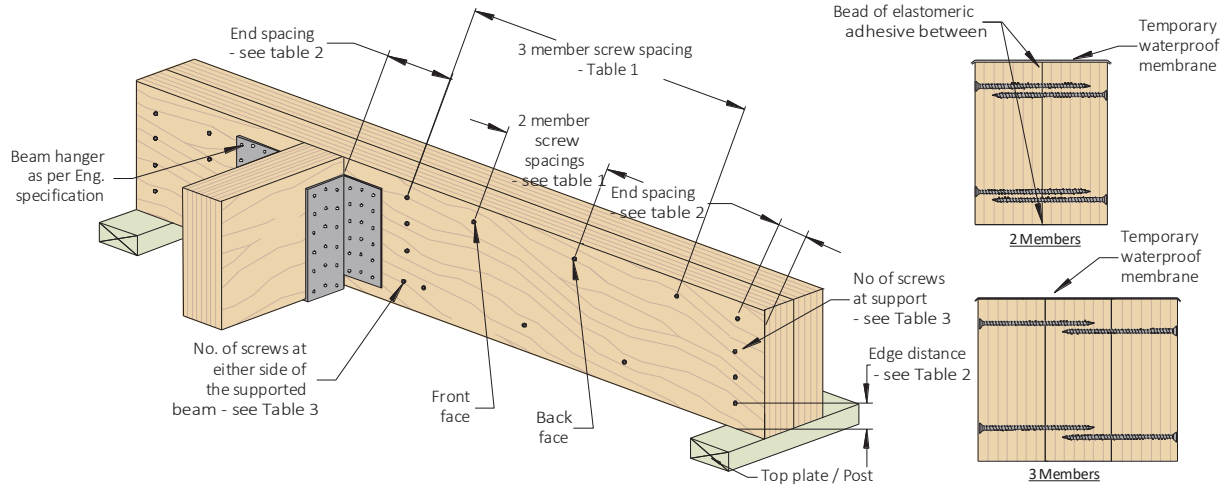


Table 1

Side (non-symmetrically) and top loaded beam				
Section width	Type 17 screw size (mm Ø)	No of screw rows (both sides)	Screw spacing (mm)	Max. floor joist span supported by outer member (mm)**
2/35 & 3/35	4.88(10g) x 65	2 or 3*	200	4500
2/42 & 3/42	5.59(12g) x 75	2 or 3*	200	5900
2/45 & 3/45	5.59(12g) x 90	2 or 3*	200	6400
2/58 & 3/58	6.3(14g) x 100	2 or 3*	200	7100
2/65 & 3/65	6.3(14g) x 125	2 or 3*	300	6000

* for beam depths $\geq 300 \text{ mm}$, use 3 rows of screws

** Floor loads $G = 1.25 \text{ kPa}$, $Q = 2.0 \text{ kPa}$

Table 2

Type 17 screw size	Min. edge distance (mm)	Min. end distance (mm)	Min. distance between screws (across the grain) (mm)
4.88(10g)	30	50	20
5.59(12g)	35	60	25
6.3(14g)	40	70	30

Table 3

Beam depth (mm)	Min. number of screws required	
	At support	At either side of supported beam
90 – 240	3	3
> 240	4	4

Multiple member lamination (Cont'd)

3. Bolts

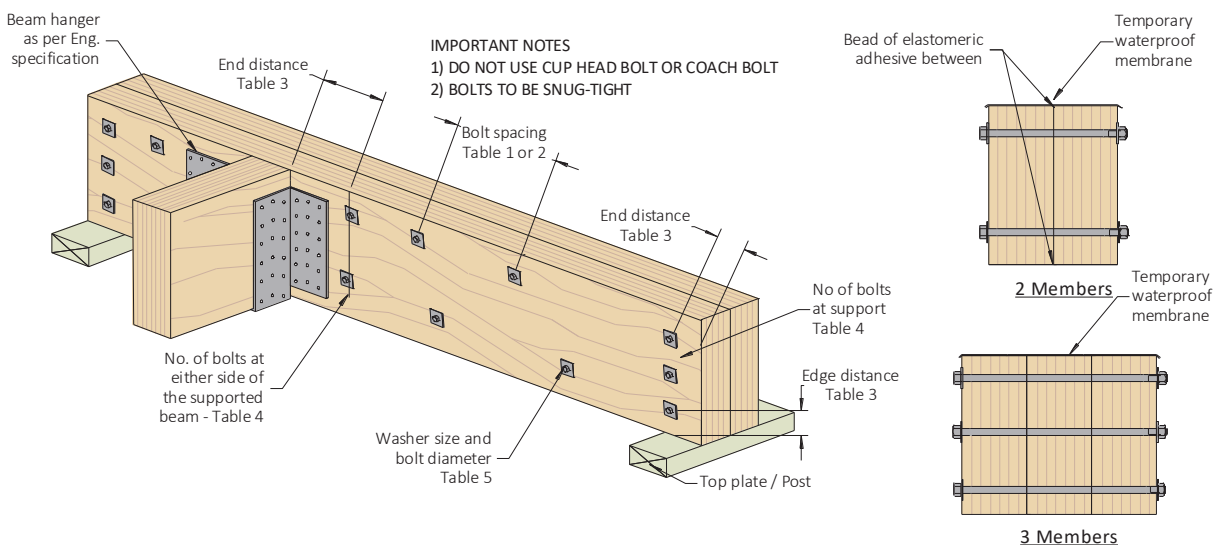


Table 1

Top (symmetrically) loaded beam - M12 Hex head bolt	
Beam depth ≤ 300 mm	Beam depth > 300 mm
2 rows of bolts at 300 mm ctrs	3 rows of bolts at 300 mm ctrs

Table 2

Side (Non symmetrically) loaded beam - M12 Hex head bolt		
Maximum floor joist span supported by the beam mm*		
2 rows at 600 mm ctrs	2 rows at 300 mm ctrs	3 rows at 600 mm ctrs
7200 mm	12,000 mm	10,800 mm

* based upon floor loads of G: 1.25 kPa Q: 2.0 kPa

Table 3

Bolt size	Min. edge distance	Min. end distance	Min. distance between bolts (across grain)
M12 Hex head	60 mm	60 mm	60 mm

Table 4

Beam depth (mm)	Min. number of bolts required	
	At support	At either side of supported beam
90–150	1	1
160–240	2	2
> 240	3	3

Table 5

Bolt diameter (mm)	Washer dimensions		
	Thickness (mm)	Min. diameter of round washers (mm)	Min. side length of square washers (mm)
M12	3	55	50

1.5 On-site cutting, notching and drilling of SmartLVL beams, bearers, rafters and joists

The cutting, notching and drilling details within Fig 4.1 of AS 1684 pre-date both the introduction of LVL and the common use of roof trusses, and therefore presents deemed-to-satisfy solutions based upon the solid section timber types/sizes and systems commonly used to frame a typical Class 1 and 10a building at that time.

Contemporary open plan building styles with larger spans and deeper/thinner beams made possible by the introduction of LVL combined with the near universal practice of building with roof trusses that typically load only to external walls have now rendered some of these deemed-to-satisfy solutions non-conservative, especially in cyclonic wind loadings.

It is for this reason that it is recommended that on-site cutting, notching and drilling of SmartLVL 14 be limited to the provisions shown below.

Further information about the effects of cutting and notching of timber elements can be found in Appendix E of AS 1720.1.

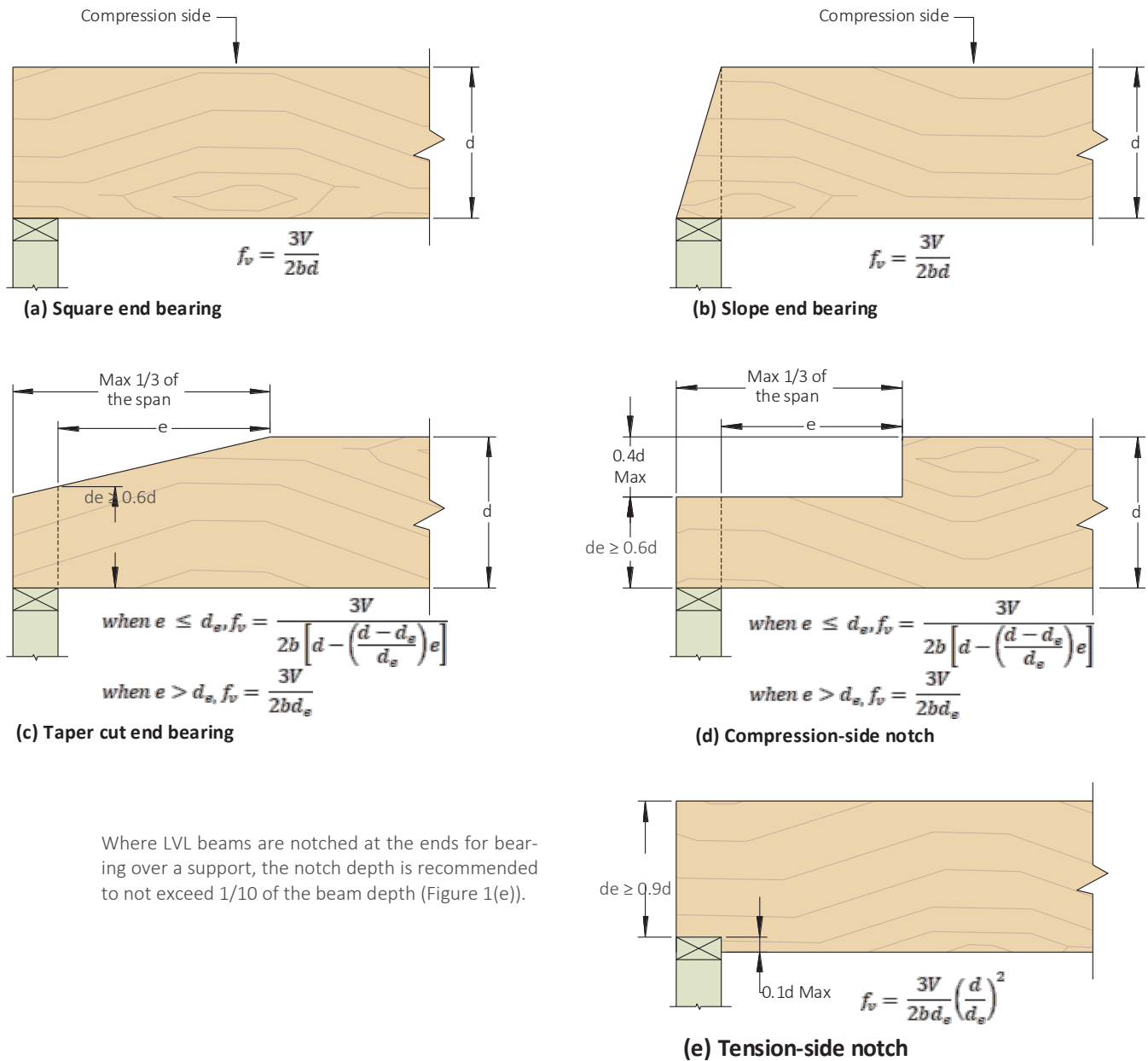
1. Notching

Notching of LVL beams should be avoided whenever possible, especially on the tension side of a member. Tension-side notching of LVL beams is not recommended except at end bearings and then only under specific conditions. The notching of LVL beams on the tension side results in decreased strength caused by stress concentrations that develop around the notch and a reduction of the net cross section resisting the bending and shear forces. Such notches induce perpendicular-to-grain tensile stresses which, in conjunction with horizontal shear forces, can cause splitting along the grain, typically starting at the inside corner of the notch. Stress concentrations, due to notches, can be reduced by using a gradually tapered notch configuration in lieu of a square-cornered notch.

All onsite notches should be accurately cut. Avoid over cutting at the corners of the notch. Drilling a 16 mm ϕ pilot hole in a member at the interior corner of a notch as a stop point for the saw blade provides both a rounded corner and minimizes over cutting at the corner and reduces stress concentrations in these areas.

1.5 On-site cutting, notching and drilling of SmartLVL beams, bearers, rafters and joists (Cont'd)

Figure 1



Where LVL beams are notched at the ends for bearing over a support, the notch depth is recommended to not exceed 1/10 of the beam depth (Figure 1(e)).

f_v = shear stress (MPa)
 d = depth of LVL beam (mm)

V = shear force at notch location (kN)
 d_e = effective depth as shown (mm)

b = width of LVL beam (mm)
 e = length of notch as shown (mm)

Notching (cont'd)

For notches on the compression side, a less severe condition exists and equations for the analysis of the effects of these notches are also given in Figure 1. The equations given are empirical in nature and were developed for the conditions shown.

As the notching provisions given in this Note are limited to uniformly loaded simple span beams, the notches shown in Figure 1 occur in areas of high shear and lower moment. For this reason, the design equations given are shear equations.

When necessary to cut a small notch in the top of an LVL beam (in the compression side) to provide passage for small-diameter pipe or conduit, the cut should be made in an area of the beam stressed to less than 50% of the allowable bending stress. The net section in this area should be checked for shear and bending

stresses to ensure adequate performance.

It should be recognized that the top of an LVL beam might not always be stressed in compression and the bottom of an LVL beam might not always be stressed in tension. For example, if the LVL beam is designed for wind uplift, the top of the LVL will be stressed in tension and the bottom of the LVL will be stressed in compression.

In this case, the recommendations given above should be applied accordingly. Furthermore, when evaluating the effect of notching, the shear force within a distance from supports equal to the beam depth should not be neglected, as typically permitted by the design of rectangular wood members in accordance with the AS 1720.1.

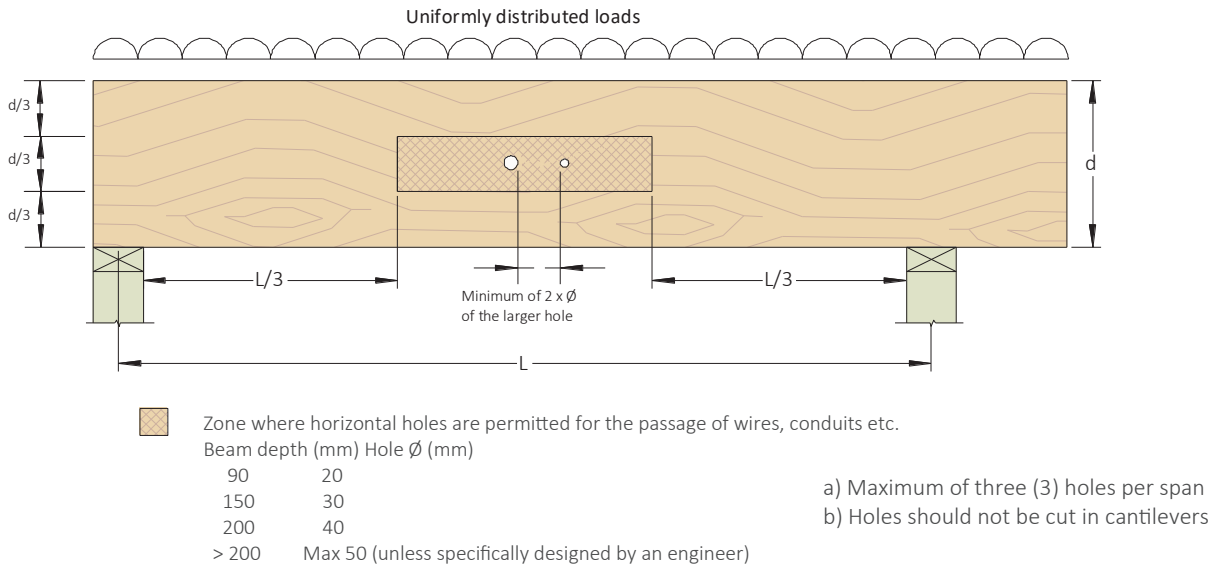
Horizontal holes

Like notches, holes in an LVL beam reduce the net section of the beam at the hole location and introduce stress concentrations. This causes a reduction in the beam capacity. For this reason, horizontal holes in LVL are limited in size and location to maintain the structural integrity of the beam. Figure 2 shows the zones of a uniformly loaded beam in simple or multiple spans, where the onsite drilling of holes may be considered. The requirements given

consider the effect of the horizontal hole on the shear and moment capacities of an LVL beam, and may be applied to multiple-piece built-up LVL beams.

Where larger horizontal holes than those specified in this document cannot be avoided in design, in some circumstances larger penetrations may be specifically designed by a structural engineer experienced in timber engineering.

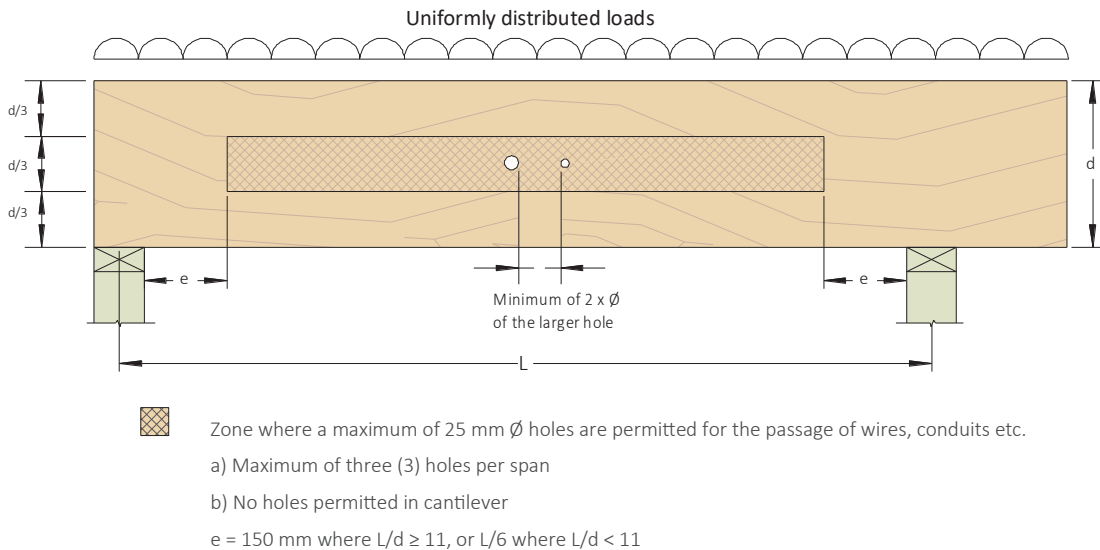
Figure 2
Permissible horizontal round hole locations for LVL beams under uniform loads



A 25 mm $\varnothing$ or smaller hole may be cut at the middle $\frac{1}{3}$ of the beam depth anywhere along the span, except for the area that is within 150 mm of clear distance between the face of the support and the nearest edge of the hole (see Figure 3 on next page), provided the following conditions are all met:

1. The beam is at least 190 mm in depth
2. The beam is subject to uniform loads only
3. The span-to-depth ratio (L/d) is at least 11
4. The maximum number of holes for each span is limited to three
5. The horizontal spacing must be a minimum of two diameters clear distance between adjacent holes based on the diameter of the larger hole
6. The hole must not be cut in cantilevers.

Figure 3
Zones where a 25 mm or smaller diameter horizontal holes are permitted in a uniformly loaded LVL beam of depth ≥ 190 mm



1.5 On-site cutting, notching and drilling of SmartLVL beams, bearers, rafters and joists (Cont'd)

Horizontal holes (Cont'd)

Beam depth (mm)	Span when L/d = 11 (mm)
200	2200
240	2640
300	3300
360	3960
400	4400
450	4950
525	5775
600	6600

The L/d of 11, is the span to depth ratio that segments the expected failure modes between shear and bending. When $L/d < 11$, the span is short, and it is expected that shear strength rather than bending will govern.

Onsite-drilled horizontal holes should be used for access only and should not be used as

attachment points for brackets or other load bearing hardware unless specifically designed as such by an engineer. Examples of access holes include those used for the passage of wires, electrical conduit, small-diameter sprinkler pipes, fibre-optic cables and other small, lightweight materials.

For LVL beams that have been over-sized, the guidelines given above may be relaxed based on an engineering analysis. When holes are required to be drilled outside the allowable zones, an engineering analysis should be conducted and approved by a structural engineer experienced in timber engineering.

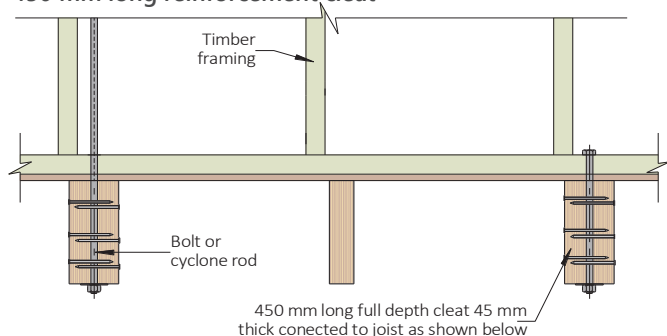
Regardless of the hole location, holes drilled horizontally through a member should be positioned and sized with the understanding that the beam will deflect (creep) more over a period of time under in-service loading conditions. This deflection could overstress supported equipment or piping unless properly considered.

Vertical holes

Whenever possible, avoid drilling vertical holes through LVL beams unless the beam width is at least 58 mm. For SmartLVL elements ≤ 58 mm thick, a 450 mm long cleat should be added as shown below, to avoid drilling vertical hole through thinner member.

Use a drill guide to minimize "wandering" of the bit to ensure a true alignment of the hole through the depth of the beam. The vertical hole should be centred in the beam width.

450 mm long reinforcement cleat



Nails/screws/bolts	Design Capacity
6 off 3.75 ϕ nails each side with min 40 mm penetration into adjacent joist/cleat	20 kN Wind uplift
6 off No 12 Type 17 screws with min 40 mm penetration into joist	
5 off No 14 Type 17 screws with min 45 mm into joist	
3 off M10 bolts	

As a rule of thumb, vertical holes drilled through the depth of an LVL beam cause a reduction in the capacity at that location directly proportional to the ratio of $1\frac{1}{2}$ times the diameter of the hole to the width of the beam. For example, a 12 mm hole drilled in a 58 mm wide LVL beam would reduce the beam capacity at that section by approximately $(12 \times 1.5)/58 = 31\%$

Holes for support of suspended equipment

Heavy equipment or piping suspended from LVL beams should be attached such that the load is applied to the top of the beam to avoid inducing tension perpendicular-to-grain stresses.

Any horizontal holes required for support of significant weight, such as suspended heating and cooling units or main water lines, should be located above the neutral axis of the beam and in a zone stressed to less than 50% of the allowable bending stress. The beam capacity should be checked for all such loads to ensure proper performance.

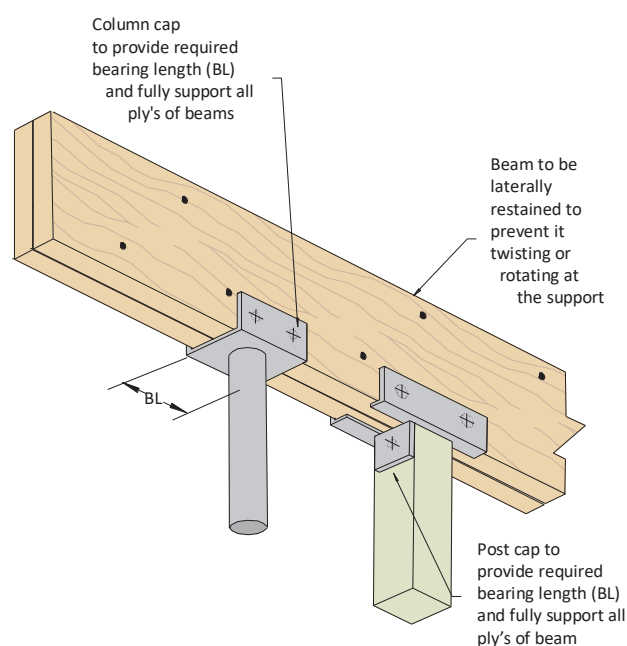
Protection of onsite-cut notches and holes

Frequently, LVL beams are provided by the manufacturer with the ends sealed by a protective coating. This sealer is applied to the end grain of the LVL to retard the migration of moisture in and out of the beam ends during transit and job site storage. Onsite cutting a notch at the end of a beam can change the moisture absorption characteristics of LVL at the notch location. This can result in localized splitting at the corners of the notch. To minimize this possibility, all notches should be sealed with a water-repellent sealer immediately after cutting. Sealing other onsite cuts as well as onsite-drilled holes is also recommended. These sealers can be applied with a brush, swab, roller or spray gun.

Further Information

Further information about the provision of larger holes, or advice about dealing with holes that have been cut into the LVL that are outside these guideline can be obtained by contacting the techsupport helpline on 1300 668 690 or at techsupport@tilling.com.au.

1.6 Steel and timber post fixing to SmartLVL



1.7 Fire resistance

The Fire Resistance Level (FRL) is the performance criteria for fire resistance, i.e. the grading periods (in minutes) for the following criteria as specified in the BCA:

- Structural adequacy: (the duration for which the elements can carry its designated load)
- Integrity: (the duration for which the element can maintain its integrity to prevent the spread of fire to/ from the compartment)

and

- Insulation: (the duration for which the element is insulating the adjacent space from excessive temperature rise)

and is expressed in that order e.g. 30/30/30. The method for determining the structural component of the Fire Resistance Period for timber (including LVL and Glulam) is described in AS /NZS 1720.4 - 2019 Timber Structures Part 4: Fire resistance of timber elements.

$$c = 0.4 + \left(\frac{280}{\delta} \right)^2$$

where:

Equation 2.5.2

c = notional charring rate, in mm per minute

d = timber density of SmartLVL 14 - ~ 600 kg/m³

The effective depth of charring (d_c) after a period of time (t) shall be calculated in accordance with Clause 2.6.1 for surfaces exposed to fire and in accordance with Clause 2.6.2 for surfaces behind fire-resistant protective insulation.

The examples detailed below contain generic fire detailing principles related to a non-rated floor abutting a rated wall where separation walls require a FRL not less than 60/60/60, commonly found in class 1a applications.

They have been included only to demonstrate that the type of joists within the non-rated floor do not effect the FRL of the rated wall junction, provided the wall is correctly detailed.

It is mandatory that those designing fire separation walls seek out and specify the latest relevant details either from a Fire Engineer, WoodSolutions® Technical Design Guides available at www.woodsolutions.com.au and Regulatory Authorities.

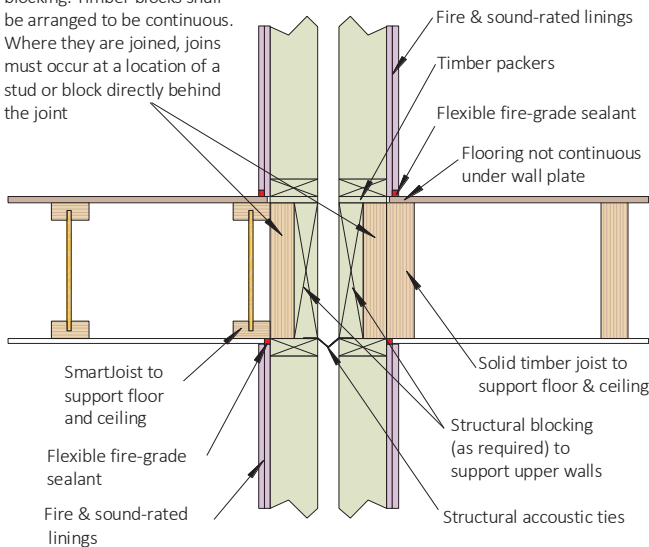
If using a tested and certified proprietary system, that system must be followed without variation.

Further information about using SmartFrame product in fire rated applications can be obtained by contacting the Techsupport Helpline on 1300 668 690.

Floor joists parallel to the wall

CB2

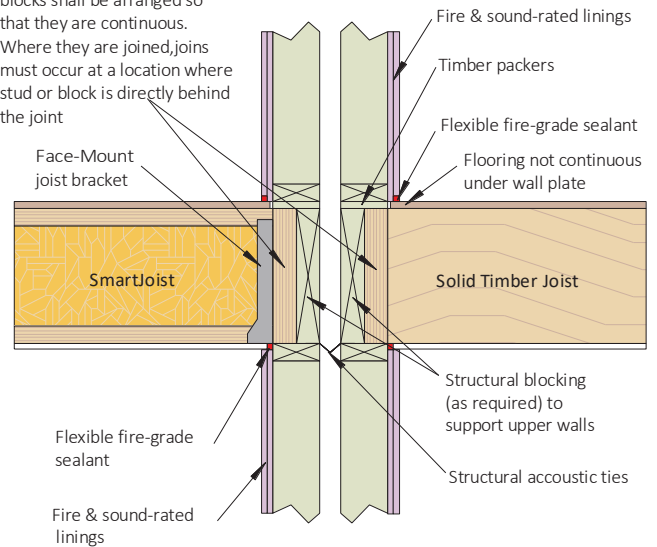
Additional 45/58 mm SmartLVL blocking. Timber blocks shall be arranged to be continuous. Where they are joined, joints must occur at a location of a stud or block directly behind the joint



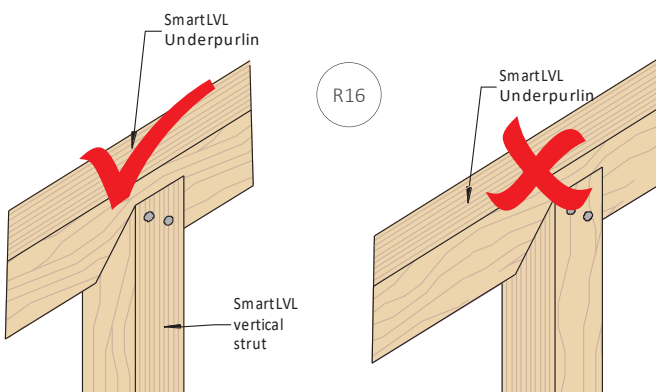
Floor joists perpendicular to the wall

CB1

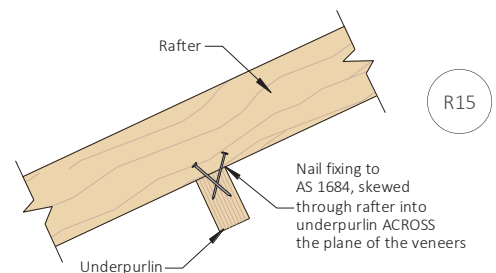
Additional 45/58 mm SmartLVL blocking. Timber blocks shall be arranged so that they are continuous. Where they are joined, joints must occur at a location where stud or block is directly behind the joint



1.8 Roof construction detailing

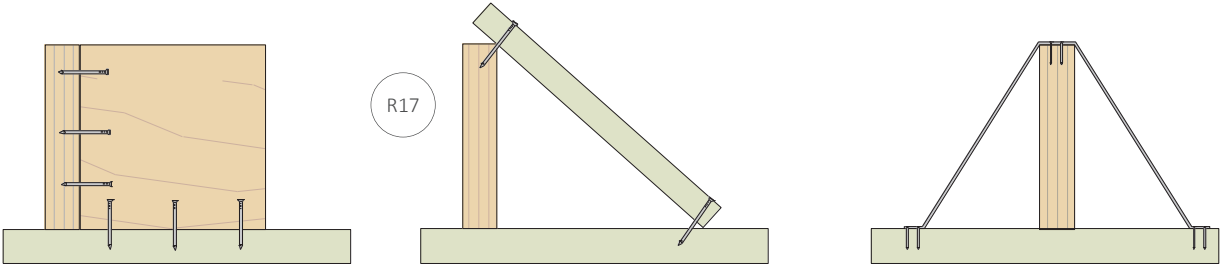


Vertical SmartLVL roof struts



Rafter underpurlin fixing

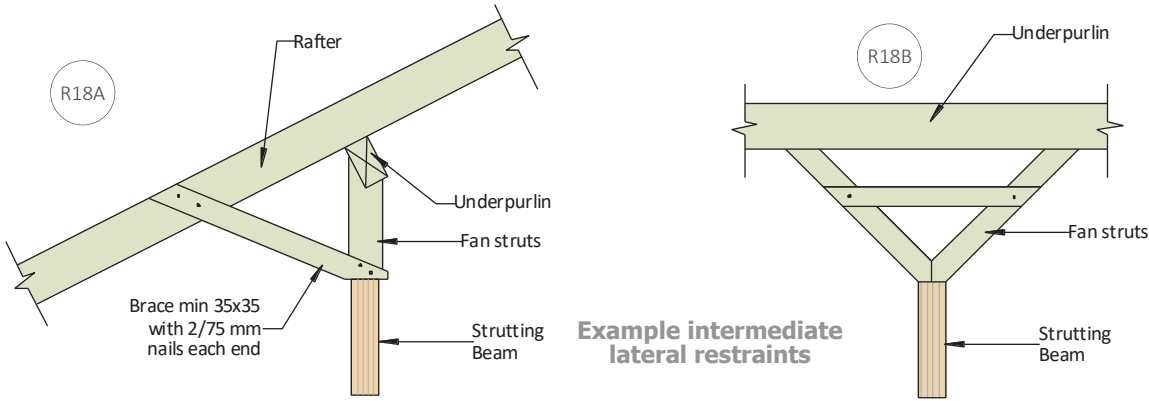
1.9 Lateral restraint of Hanging, Counter, Strutting, Strutting/hanging beams, Strutting/counter beams



(a) Block skew nailed to beam and to support with 3/75 mm skew nails to each member. (b) Min 35 x 32 mm tie nailed to top of beam and to support with 2/75 mm nails at each end. (c) Galvanised strap nailed to support and top of beam with 2/30 x 2.8 φ mm nails each end and to beam.

Notes:

- 1. Method used depends upon whether ceiling joists are perpendicular or parallel to the beam
- 2. Methods given in (b) and (c) are particularly suitable for restraining strutting beams and strutting/hanging beams at the intermediate points where the beams are supported, as they also permit these beams to be supported up clear of the ceiling joists by packing under at their supports.



Example intermediate lateral restraints

1.10 Chemical resistance

SmartLVL (wood in general) has a definite advantage over steel members when exposed to corrosive environments. Timber and wood products are able to withstand mild acid conditions and are more resistant to degradation.

The behaviour of SmartLVL in chemical environments depends upon a number of factors, including PH and temperature. Wood essentially responds by either swelling (Category S), similar to moisture response, or by chemical degradation (Category D). Damage due to swelling is essentially reversible, but chemical degradation results in breakdown of the wood structure and is non-reversible. Category S agents include alcohol and other polar agents. These agents swell dry wood causing a strength (and stiffness) loss proportional to the swelling.

Category D agents include acids, alkalis and salts and result in a loss of strength and stiffness directly related to the loss of member cross-section. The table below provides a rough guide to performance of SmartLVL in chemical environments.

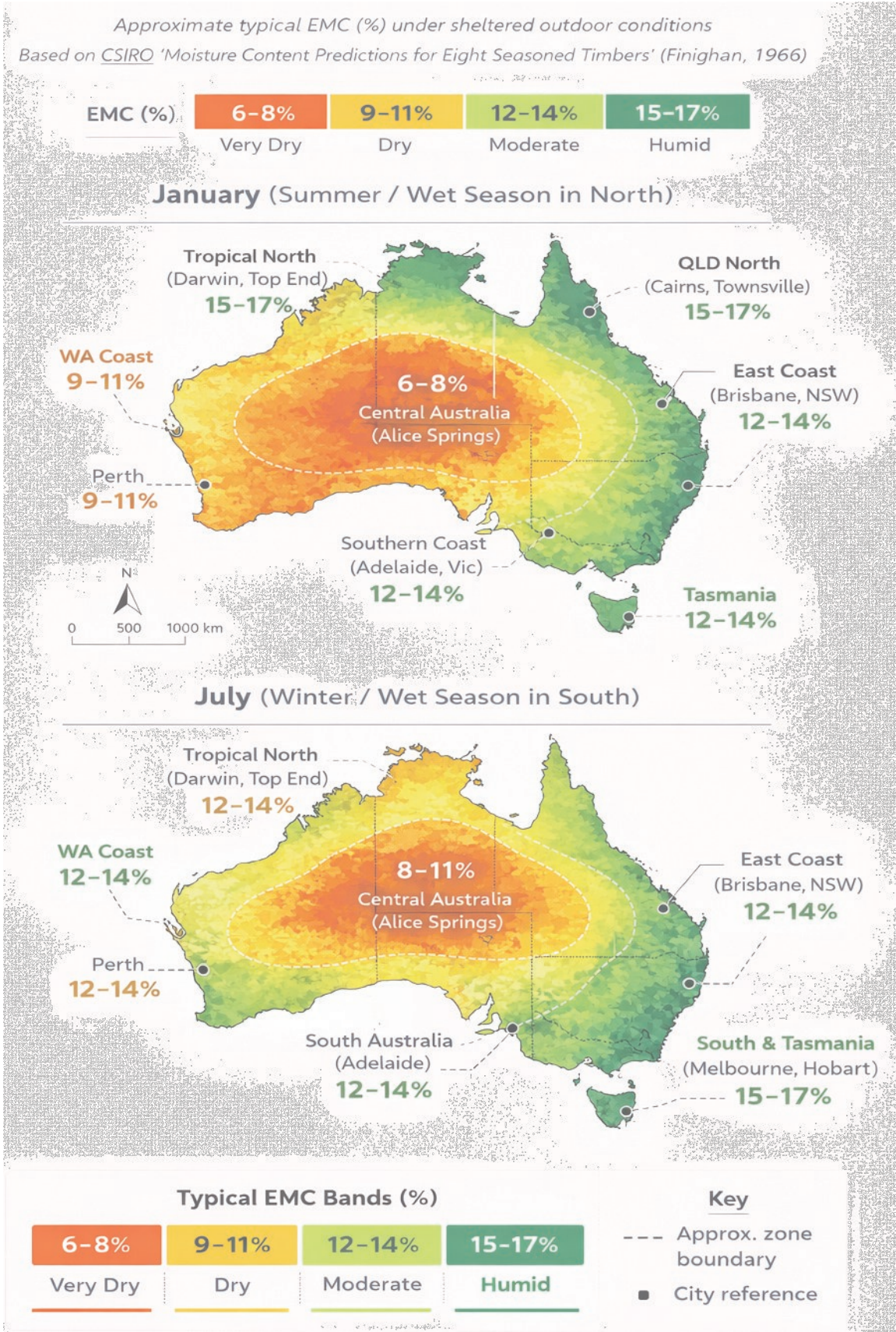
The effect of chemicals on wood will generally be worsened by increased exposure time, temperature, extremes of pH and chemical concentration. Wood generally offers considerably less resistance to alkalis than acids. Softwoods (includes SmartLVL) generally have better resistance to acids than hardwoods.

Where there is the possibility of chemical attack on SmartLVL members, designers should seek expert advice.

Agent category	Chemical agent	Mode of attack	Damage - reversible or permanent	Severity - (loss of strength and/or stiffness)
Neutral	Non-polar liquids such as petroleum hydrocarbons	None	Negligible	Negligible
S (swelling)	Alcohol and other polar solvents	Swelling	Reversible	Proportional to volumetric swelling
D (degrading)	Inorganic acids	Hydrolysis of cellulose	Permanent	Slight to moderate
D	Organic acids such as: Formic, acetic, propionic and lactic acid	Hydrolysis of cellulose	Permanent	Slight (pH 3-6)
D	Alkalis such as: sodium, calcium and magnesium hydroxide	De-lignification of wood and dissolving of hemicellulose	Permanent	Moderate (pH > 9.5) Severe (pH > 11)
D	Salts (considered as weak acids)	Hydrolysis of cellulose	Permanent	Slight

Table reference Williamson T.G. 2002 APA Engineered Wood Handbook

Timber equilibrium moisture content (EMC) zones in Australia



Climate description (engineering interpretation)

Term	Meaning for timber	Term	Meaning for timber
Arid	Very low EMC, minimal shrink/swell	Humid coastal	High EMC, low seasonal variation
Semi-arid maritime	Moderated, but still relatively dry	Tropical	High EMC, wet-season driven
Mediterranean	Large seasonal swing	Temperate	Moderate-high EMC, winter dominant

Predicted EMC range of timber for sheltered outdoor conditions by City

City	State	Jan EMC (%)	Jul EMC (%)	EMC band (%)	Climate description
Darwin	NT	16–18	14–16	14–18	Tropical monsoonal (wet/dry season)
Alice Springs	NT	6–8	8–10	6–10	Arid desert interior
Perth	WA	9–11	12–14	9–14	Mediterranean coastal
Carnarvon	WA	9–11	11–13	9–13	Semi-arid maritime coast
Broome	WA	13–15	12–14	12–15	Tropical coastal (monsoonal influence)
Albany	WA	11–13	14–16	11–16	Cool temperate coastal
Geraldton	WA	9–11	12–14	9–14	Semi-arid maritime transition
Kalgoorlie	WA	7–9	10–12	7–12	Arid inland
Adelaide	SA	9–11	13–15	9–15	Mediterranean temperate
Port Lincoln	SA	10–12	14–16	10–16	Southern coastal temperate
Whyalla	SA	8–10	12–14	8–14	Semi-arid coastal
Broken Hill	NSW	6–8	11–13	6–13	Arid inland
Mildura	VIC	8–10	12–14	8–14	Semi-arid inland
Melbourne	VIC	10–12	15–17	10–17	Temperate coastal
Geelong	VIC	10–12	15–17	10–17	Temperate coastal
Ballarat	VIC	10–12	15–17	10–17	Cool inland temperate
Hobart	TAS	11–13	15–17	11–17	Cool temperate maritime
Launceston	TAS	11–13	15–17	11–17	Cool temperate inland
Canberra	ACT	9–11	14–16	9–16	Temperate inland
Sydney	NSW	12–14	14–16	12–16	Humid coastal
Wollongong	NSW	13–15	15–17	13–17	Humid coastal
Newcastle	NSW	12–14	14–16	12–16	Humid coastal
Dubbo	NSW	8–10	13–15	8–15	Inland temperate
Bathurst	NSW	9–11	14–16	9–16	Inland temperate
Brisbane	QLD	14–16	13–15	13–16	Subtropical humid
Gold Coast	QLD	14–16	13–15	13–16	Subtropical coastal
Townsville	QLD	14–16	13–15	13–16	Tropical coastal (seasonal dry)
Cairns	QLD	15–17	14–16	14–17	Tropical humid
Mackay	QLD	15–17	14–16	14–17	Tropical coastal
Rockhampton	QLD	14–16	13–15	13–16	Subtropical transitional
Toowoomba	QLD	11–13	13–15	11–15	Elevated inland subtropical

1.11 Durability and exposure to moisture

1.11.1 Basis of EMC zone maps

Timber is a hygroscopic material that exchanges moisture with surrounding air until an equilibrium condition is reached. This equilibrium moisture content (EMC) depends primarily on the relative humidity (RH) and temperature of the surrounding environment.

The city-based EMC table has been developed using the CSIRO dataset “Moisture Content Predictions for Eight Seasoned Timbers under Sheltered Outdoor Conditions in Australia and New Guinea” (Finighan, 1966), which provides predicted monthly timber moisture contents for a wide range of Australian localities.

In that study, timber specimens of multiple species and thicknesses were exposed under sheltered outdoor conditions, and their moisture contents were correlated with long-term meteorological data, primarily dry-bulb temperature and relative humidity using regression equations.

The resulting tables present monthly mean moisture contents representative of typical in-service conditions for protected structural timber.

For each city, January and July EMC ranges were derived to capture seasonal variation, recognising that Australia exhibits two distinct moisture regimes: a monsoonal pattern in the north where summer (wet season) EMC exceeds winter values, and a temperate pattern in the south where winter EMC is higher due to increased relative humidity. The ranges presented are not single-point estimates but envelopes that account for inter-species variation, short-term climatic fluctuation, and the statistical spread inherent in the CSIRO regression models.

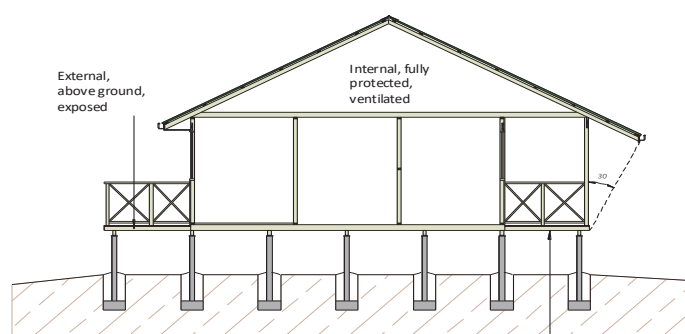
This approach aligns with the original study, which demonstrated that predicted moisture contents typically fall within a narrow band (generally within ± 1 –2%) of observed values under comparable conditions.

Finally, an annual EMC band has been assigned to each location, representing the practical range between seasonal minima and maxima. These bands are intended for design application, such as assessing timber shrinkage, serviceability, and durability risk. The associated climate descriptions further group cities into coherent moisture regimes, enabling designers to extrapolate beyond individual locations and apply EMC assumptions at a regional scale.

1.11.2 LVL Durability and exposure to moisture

SmartLVL is manufactured from softwood veneers which have a durability rating of class 4, which is the same rating as some Ash type Eucalypts.

Definitions of exposure zones within a structure



External timbers are regarded as protected in AS 1684 if they are covered by a roof projection (or similar) at 30° to the vertical and they are well detailed and maintained (painted and kept well ventilated).

Untreated SmartLVL should not be used where the equilibrium moisture content is likely to remain above 20% for an extended

period.

Untreated and H2s SmartLVL is suitable in the *internal, fully protected, ventilated* and the *external above ground, protected* zones of the structure as shown below. Untreated or H2s SmartLVL is not suitable for *external above ground, exposed* or humid indoor conditions, such as swimming pool enclosures.

SmartLVL, like all wood products, is hygroscopic, which means it has an affinity for water, and being a LVL, should be considered as a composite of many pieces of wood, each with different potential swelling. Moisture exposure will ultimately lead to dimensional change.

SmartLVL is supplied WITH a new generation short term construction water repellent (H₂O Shield™) and once framed into a structure may be exposed to the weather for a limited time (usually not greater than 3 months) without negative affect, BUT, it may exhibit some effects of this exposure such as swelling and checking (especially at cut ends), depending upon the weather conditions.

While offering significant water short term repellency comparable to wax coatings, the H₂O Shield™ does NOT totally WATER PROOF the LVL. While the products will withstand normal exposure, excessive exposure during distribution, storage or construction may lead to dimensional changes that affect serviceability. These changes include cupping, bowing or expansion to dimensions to beyond the specified tolerance of the product in the “as-manufactured” condition.

Individual members of a vertically laminated multi member may exhibit some cupping if water becomes trapped between the laminates. This cupping produces more of a visual and possible fixity problem rather than being structurally significant. If not properly dried out, this moisture between laminated members may lead to decay. To prevent this effect, use construction details as shown on page 2.

As an organic material, mould and mildew may grow on untreated wood products if moisture is present. Prolonged periods of high moisture may also support the growth of wood decay fungi. The H₂O Shield™ does provide some resistance to mould and fungi attack, but it is NOT equivalent to H3 treatment.

In critical applications where dimensional change due to moisture exposure is to be absolutely minimised ((e.g. truss applications in wet humid conditions) it is recommended that the remedial H₂O shield available from Tilling Timber in spray cans (or bulk for airless spray guns) be used to recoat any cut ends or notches etc.

The table below shows the moisture content of LVL as a function of humidity.

1.11.3 Dimensional Change

Moisture content of wood products % ⁽¹⁾	
Relative Humidity %	LVL MC
10	1.2
20	2.8
30	4.6
40	5.8
50	7.0
60	8.4
70	11.1
80	15.3
90	19.4

1. Approx. moisture content at 21°C

SmartLVL will shrink and swell in proportion to the moisture content between 0 and 28% fibre saturation point.

1.11 Durability and exposure to moisture

The most significant moisture movement will occur across the grain (tangential and radial directions within a log). Longitudinal (movement in the grain direction) may be a factor depending upon the type of structure. Detailing of SmartLVL to be used where moisture contents will cycle should allow for dimensional instability.

The AVERAGE amount of dimensional change in a piece of LVL changes in moisture content can be APPROXIMATED by the following formula:

$$\Delta D = D_i S (MC_i - MC_f) / FSP$$

Where:

ΔD = change in dimension

D_i = Initial dimension

S = Shrinkage coefficient = approximately 6%

MC_i = Initial moisture content

MC_f = final moisture content

FSP = fibre saturation point approximately 28%

HOWEVER, these dimensional effects are quite variable. Thickness swell in LVL is erratic along the length because of the densification of the lap joints during manufacture tends to “relieve” when saturated and the total swell in sections containing two (2) laps can be as much as 3 mm.

Worked example

Estimating timber movement from EMC change

If a 300 × 63 LVL13 roof beam that is at equilibrium in Perth is instead used in Broome in January, how much increase in depth and width could be expected?

Step 1 — EMC difference

Use the midpoint of the two EMC bands:

- Perth January EMC ≈ 10 %
- Broome January EMC ≈ 12. %

So:

$$\Delta MC = 12 - 10 = 2.0\%$$

That means the LVL would be expected to gain moisture and therefore swell slightly in Broome relative to Perth.

Step 2 — Movement formula

Use:

$$\Delta d = d \times 0.0027 \times \Delta MC$$

where d is the relevant cross-sectional dimension in mm.

Step 3 — Change in depth

For the 300 mm depth:

$$\Delta d = 300 \times 0.0027 \times 2.0 = 1.62 \text{ mm}$$

Expected increase in depth ≈ 1.6 mm

Step 4 — Change in width

For the 63 mm width:

$$\Delta b = 63 \times 0.0027 \times 2.0 = 0.34 \text{ mm}$$

Expected increase in width ≈ 0.3 mm

For a 300 × 63 LVL13 roof beam moving from Perth January conditions to Broome January conditions, a reasonable worked-example estimate is:

- Depth increase: about 1.6 mm

- Width increase: about 0.3 mm

Because the EMC values are bands, there is a reasonable range around that midpoint result:

- If the EMC difference were only 1%, the beam would increase by about 0.8 mm in depth and 0.2 mm in width
- If the EMC difference were 3%, the beam would increase by about 2.4 mm in depth and 0.5 mm in width

1.11.4 Change in characteristic strengths

Changes in moisture content in wood results in changes in mechanical properties, with higher properties at lower moisture contents. Estimates of the effect of moisture differentials on the properties of clear wood may be obtained by the following equation:

$$P = P_{12} \left(\frac{P_{12}}{P_g} \right)^{\left(\frac{12 - M}{M_p - 12} \right)}$$

Where:

P = Characteristic property at moisture content

P_{12} = same Characteristic property at 12% moisture content

P_g = same Characteristic property for Green wood

M_p = Intersection moisture content = 24%

APPROXIMATE affect upon key characteristic design properties of LVL by changes in MC are outlined in the table below:

Characteristic Property		% Reduction in Characteristic strength at % MC					
		14	16	18	20	22	24
MOE (Stiffness)	E	3.3	6.5	9.7	12.7	15.6	18.4
MOR (Bending)	F _b	8.4	16.1	23.1	29.6	35.5	40.9
Compression perpendicular to grain	f _p	9.9	18.9	27.0	34.2	40.8	46.7
Compression parallel to grain	f _c	11.0	20.7	29.4	37.2	44.1	50.2
Shear	f _s	6.6	12.8	18.6	24.0	29.0	33.7

The design Characteristic properties of SmartLVL can therefore be considerably reduced by severe increase in MC of the LVL.

If the SmartLVL is being built into structures (such as Prefabricated trusses) that are:

- Likely to experience large increase in MC due to weather exposure or stored on the ground
- Likely to be loaded to at/or close to design loads while in the high MC state

then the reduced Characteristic Strengths as detailed above NEED to be used in the design or members may require temporary propping.

Once covered, the SmartLVL will ultimately dry and re-equilibrate to the ambient humidity conditions, but some expansion or swelling will remain after re-drying. The thickness swelling in laps will never fully shrink back and a large piece of LVL can have a final thickness variation along the length of 3-4 mm.

Estimating timber deflection change from EMC change

For a 300 × 63 timber member designed in Perth to have a long-term deflection of 10 mm under $G=0.4$ and $Q=1.5$, with $j_2=2$,

1.11 Durability and exposure to moisture

corresponding member in Broome may be expected to deflect about 11.0 mm under the same loading.

Worked example:

Summary- In this worked estimate, the increase arises from two sources: a small increase in immediate elastic deflection due to reduced stiffness at higher service moisture content, and a larger increase in the mechano-sorptive / creep component associated with the wetter Broome service environment.

The net increase is about 0.95 mm, or about 10%.

Step 1 — Back-calculate the Perth load-deflection constant

Item	Perth	Broome	Comment
Member size	300 × 63	300 × 63	Same section
Permanent action, G	0.4	0.4	Same load
Imposed action, Q	1.5	1.5	Same load
Adopted creep factor j_2	2.0	2.35	Broome increased for higher EMC
Representative service EMC	11.5%	13.5%	From the Perth/Broome climate bands previously derived
Relative stiffness factor	1.00	0.96	Assumed 4% lower E in Broome
Assumed long-term Deflection (mm)	10.00	—	

Given:

$$10 = k[Q + (1 + j_2)G]$$

$$10 = k[1.5 + (1 + 2) \times 0.4]$$

$$10 = k(2.7)$$

$$k = 3.7037 \text{ mm per load unit}$$

Step 2 — Split the Perth deflection into elastic and mechano-sorptive parts

Perth component	Calculation	Deflection
Immediate dead-load deflection	0.4×3.7037	1.48 mm
Immediate live-load deflection	1.5×3.7037	5.56 mm
Total immediate elastic deflection	$1.48 + 5.56$	7.04 mm
Mechano-sorptive / creep increment	$j_2 \times \Delta G_{inst} = 2 \times 1.48$	2.96 mm
Total long-term deflection	$7.04 + 2.96$	10.00 mm

Step 3 — Adjust the elastic part for Broome

Assume Broome service EMC is about 2 percentage points higher, giving a 4% reduction in stiffness:

$$E_{Broome} = 0.96 \times E_{Perth}$$

So deflection increases by:

$$1/0.96 = 1.0417$$

Broome elastic component	Calculation	Deflection
Immediate dead-load deflection	1.48×1.0417	1.54 mm
Immediate live-load deflection	5.56×1.0417	5.79 mm
Total immediate elastic deflection	7.04×1.0417	7.33 mm

Step 4 — Adjust the mechano-sorptive part for Broome

Using the EMC ratio:

$$13.5/11.5 = 1.174$$

$$J_{2, Broome} = 2.0 \times 1.174 \approx 2.35$$

Then:

$$\Delta_{ms, Broome} = 2.35 \times 1.54 = 3.62 \text{ mm}$$

Step 5 — Total Broome long-term deflection

Broome total	Calculation	Deflection
Immediate elastic	—	7.33 mm
Mechano-sorptive / creep increment	—	3.62 mm
Total long-term deflection	$7.33 + 3.62$	10.95 mm

Note: These example are illustrative only.

The assumed relationship between EMC, dimensional change, stiffness reduction and creep / mechano-sorptive behaviour is simplified for worked-example purposes and should not be taken as a product-specific design rule.

Actual values may vary with species, product type, load duration, moisture cycling amplitude, and service exposure.

1.11.5 Design for durability

- The use of building overhangs and other structures which protect the beams from excessive moisture movement and sun exposure.
- All beams should be provided with adequate ventilation so that moisture content within beams will not exceed 15% and moisture gradients across the beam will not occur.
- The use of arrised or round edges on beams to reduce the likelihood of coating failures on sharp edges.
- The use of drip edges or other devices which provide a path for free moisture flow away from the timber beam.
- Joint detailing should, wherever possible, comply with the following:
 - Keep horizontal contact areas to a minimum, in favour of self draining vertical surfaces.
 - Ventilate joint surfaces by using spacers, wherever possible
 - Always use compatible fasteners which have adequate corrosion protection and do not cause splitting during installation e.g. hot dipped galvanic coatings or stainless steel
 - Ensure any moisture entering a joint is not trapped but can adequately drain away from the joint.

Allow for thermal expansion/contraction in the joint design.

1.11.6 Post-Production treatment

SmartLVL is supplied glue-line H2S* treated or can be supplied either LOSP treated or Tru-Core® treated to either H2 or H3 hazard class levels, as per AS/NZS 1604.4. (Tru-Core® is a registered trade mark of Kop-Coat Australia PTY Limited)

To maintain effective treatment it is a requirement that any cuts, notches or penetrations made in post production treated LVL be painted with a suitable “brush/spray on” preservative.

The hazard class number selected is based upon the specific exposure condition for the proposed end use of the SmartLVL, as shown in the table on the next page.

1.11 Durability and exposure to moisture (Cont'd)

Hazard class selection guide				
Hazard class	Exposure	Specific service conditions	Biological hazard	Typical uses
H1 [†]	Inside, above ground	Completely protected from the weather and well ventilated, and protected from termites	Lyctid borers	Interior beams, staircases, stringers
H2S [*]	Inside, above ground	Protected from wetting Nil leaching	Borers and termites	Interior beams, staircases, trusses, joists
H2	Inside, above ground	Protected from wetting Nil leaching	Borers and termites	Interior beams, staircases, trusses, joists
H3	External, above ground	Subject to periodic moderate wetting and leaching	Moderate decay, borers and termites	Exterior beams ⁽¹⁾

[†] The timber species in SmartLVL are not susceptible to Lyctid Borer attack

^{*} H2S treatment is only suitable South of the Tropic of Capricorn

A more comprehensive Hazard Class Table is available in AS/NZS 1604.4, but it is NOT recommended that SmartLVL be used in end uses with exposures requiring treatment in excess of H3.

Experience is showing that post production treated LVL in the **external above ground, exposed** (H3 Hazard Class) may experience some leaching of the active ingredients of the treatment. To minimise the possibility of timber degradation in these situations, it is recommended that H3 treated Smart LVL NOT be used where the surface is horizontally exposed AND unprotected from water entrapment OR where post-treatment protection cannot be maintained.

Post treatment protection may include:

- I. Protectadeck or Vapour Seal high density water proof joist/ bearer cover or malthoid capping
- and
- I. An impervious membrane such as regularly maintained painting or staining
- II. Construction detailing to prevent water entrapment.

H3 treated SmartLVL is NOT recommended for fascia's, pergolas or other similar external above ground, exposed applications due to mechanical degradation of the wood fibre causing checking and cracking which is both aesthetically unacceptable and allows ingress of water to inner veneers.

1.11.7 Fasteners for H3 LVL

For any H3 Smart LVL to be used in exposed exterior applications, it is recommended that either hot dipped galvanised or stainless steel fasteners are used.

Specifically, If the Tru-Core® Copper Quat H3 treatment process is used, high grades (304, 305 and 316) of stainless steel materials perform the best.

1.11.8 Painting of treated SmartLVL

General

To provide the longest service life of the SmartLVL it is recommended the LVL is painted with an exterior paint with a Light Reflectance Value (LRV) greater than 30%. Heat reduction exterior paints should be used where the desired colour is dark or has a LRV of less than 30% The heat reflective paint's colours should be lim-

ited to a Total Solar Reflectance (TSR) value greater than 29%.

Any paint or stain must be recommended by the manufacturer as being suitable for the proposed application and must be applied in a manner in strict compliance to the manufacturer's recommendations.

LOSP Treated

Wait until excess solvents have evaporated and timber is dry. The pressure of the solvent (white spirits) from the LOSP treatment may affect the drying and hardening of paints if there has been insufficient evaporation time after the treatment. It is strongly recommended that the treated timber is left to recondition for at least 7 days in the end use situation before painting.

One coat of premium quality primer as a minimum should be applied to all surfaces prior to erection of beam and to any cuts or holes drilled. If the first coat of primer, sealant paint or stain fails to dry or adhere within the time expected, do not proceed to any further coats until the first coat has achieved satisfactory dryness and adhesion. If the first coat fails to dry it may be necessary to strip back to bare timber and allow it to weather for another week or two.

a. Paint

Exterior solid colour acrylic finish. One coat of oil based primer followed by one or two coats of the exterior acrylic finish as required.

or

Exterior solid colour oil based enamel. One coat of oil based primer followed by one coat of oil based under-coat (if required) then two coats of the oil based enamel.

b. Stains

Exterior semi-transparent or solid colour penetrating oil based stain or similar. Two or three coats of the stain as required or recommended by the manufacturer.

Water based stains and un-pigmented sealants, oil or water repellents are NOT recommended.

Tru-Core® Treated

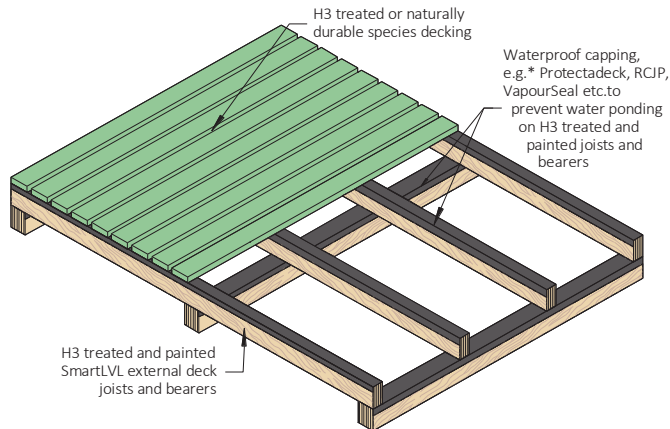
1. The wood must be dry and clean prior to applying any finish coating. If initial cleaning of the treated wood is needed, it is recommended that the project be cleaned with a deck cleaning product and allow to fully dry.
2. At this time, a clear water repellent may be added to the project. If applied, allow 8 weeks prior to the application of a semi-transparent stain or paint
3. If no water repellent is added, an oil based stain can be applied to the clean, dry wood in 30-60 days from treatment date. A water based stain can be applied to the clean, dry wood in 45-70 days from treatment date.
4. Depending on the treatment method used, if the wood is left uncoated and without UV protection:
 - I. The typical brown colour of the Copper Quat treated wood will naturally weather to a grey colour over long-term exposure to the sun
 - II. The Azole treated wood has no colouration so it will naturally weather to a grey colour over long-term exposure to the sun.

Users must always conduct their own tests on coatings in inconspicuous areas of the project to determine acceptability of colour, adhesion and appearance.

1.11 Durability and exposure to moisture (Cont'd)

1.11.9 H3 Deck bearers and joists

H3 Treated Deck joists and bearers are a common application for treated SmartLVL. The diagram demonstrates the minimum construction detailing for H3 treated joists and bearers. Failure to follow these guidelines may render treatment warranties void.



It is recommended that deck nails be slightly skewed as per the detail adjacent



Note: Impervious membrane images above are examples of commercial products available only. It is the responsibility of the builder to source and install a waterproof membrane that will prevent water ponding on top of any H3 SmartLVL deck joists or bearers.

1.12 Deck ledger attachments

As with window and door installations in walls, paying careful attention to flashing details for decks attached to the house exterior is critical to avoid potential rot and mould of inner non treated wall frames and floor systems. Water from direct rainfall, splash from decks and runoff from incorrectly sloped deck surfaces can leak into the exterior wall where the deck attaches to the house.

Several conditions contribute to the water problem:

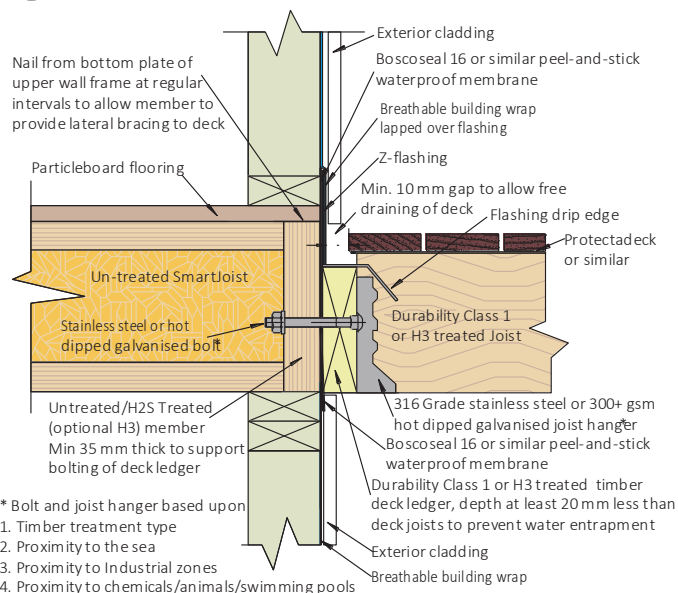
- The ledger board is simply attached to the house with numerous lag screws or other hardware that penetrate the wall's cladding and drainage plane, but no flashing

has been installed to protect these areas

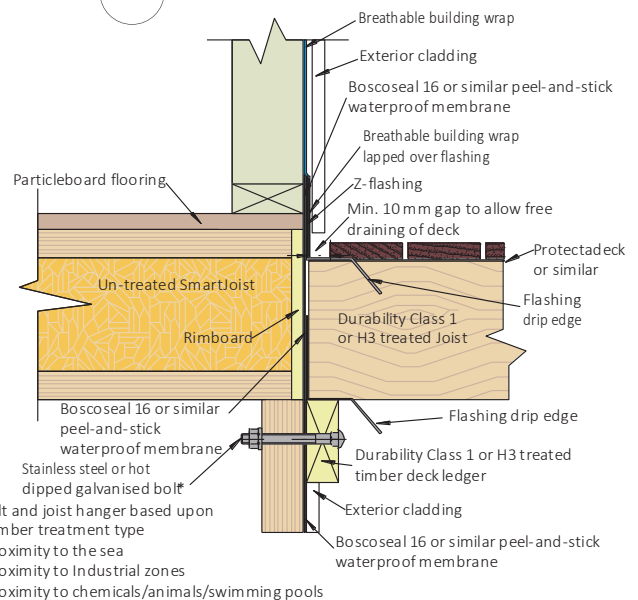
- Water is often trapped behind the ledger board
- Upward splashing of rain from the deck adds significant wetting to the cladding, and inadequate flashing results in wetting and rot in the wall's framing and other internal elements.
- Integrating the attachment of the ledger board with the drainage plane behind the wall's cladding and adding proper flashing will maintain the integrity of the drainage plane and channel water away from the wall's surface.

Example flashing of deck ledger connection to un-treated house frame

F35A



F35B



1.13 Designing with SmartLVL 14

The design information contained within this Design Guide is for the properties of SmartLVL 14 only. Other manufacturers' LVL may have different properties and therefore cannot be designed using this information.

1. Product Specification

Veneer:	Thickness:	1.9-3.0 mm
	Species:	Mixed species, Masson pine, Eucalyptus, Spruce
	Strength	SD6
	Joints:	Scarf joint
Dimensional tolerances:	Length:	± 10 mm
	Depth:	≤ 400 mm +2,-3 mm ≥ 400 mm +5,-0 mm
	Thickness:	- 0, +4 mm at 12% moisture content
Adhesive:	Complies with AS/NZS 4364:2010	
Treatment options:	Manufactured as H2S, H2 and H3 available on request	

2. Limit State design characteristic properties

Timber Strength Properties: ⁽¹⁾		
Bending	f'_b	62 MPa
Tension Parallel to grain	f'_t	35 MPa
Tension Perpendicular to grain	f'_{tp}	0.5 MPa
Compression Parallel to grain	f'_c	47 MPa
Compression Perpendicular to grain - Edge	f'_p	13 MPa
Shear	f'_s	5.0 MPa
Average Elastic Modulus	E	14,500 MPa
Average Modulus of Rigidity	G	725 MPa
Average Density		680 kg/m ³
Moisture Content		12-15%

(1) Dry conditions

3. Strength reduction factor

The strength reduction factor for calculating the design capacities of structural members shall be taken from the table below, referenced from AS 1720.1 –2010.

Application of SmartLVL 14 as a structural member		
Category 1	Category 2	Category 3
Structural members for houses for which failure would be unlikely to affect an area greater than 25 m ² ; OR secondary members in structures other than houses	Primary structural members in structures other than houses; OR elements in houses for which failure would be likely to affect an area* greater than 25 m ²	Primary structural members in structures intended to fulfil essential services or post disaster function
Strength reduction factor ϕ^*		
0.95	0.85	0.75

* AS 1720.1:2010 Table 2.1

4. Duration of load

The duration of load factor k_1 for strength and j_2 for creep deformation are defined within clause 2.4 of AS 1720.1.

5. Partial seasoning factor

SmartLVL 14 is a seasoned timber product, generally k_4 equals 1. Where the LVL is subjected to conditions in which the average moisture content for a 12 month period is expected to exceed 15%, the characteristic capacity shall be decreased. The value of k_4 shall be the greater of:

- $k_4 = 1 - 0.3 \frac{EMC - 15}{10}$;
- $k_4 = 0.7$

Where EMC is the highest value of the annual moisture content (percent) that the timber will attain in service.

6. Length and position of bearing

The k_7 bearing factor is defined is clause 2.4.4 of AS 1720.1

7. Load sharing

Because of the reduced variability of strength values of LVL compared to solid timber, the load sharing factor $k_9 = 1.0$ as defined in clause 7.4.3 of AS 1720.1.

8. Stability

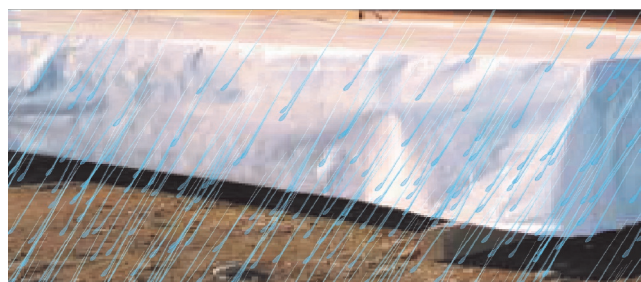
The stability factor k_{12} is defined within section 7 of AS 1720.1 beams. The methods for calculating k_{12} for solid wood in section 3 of AS 1720.1 shall generally apply except that the material constant (ρ_b or ρ_c) for beams and column shall be as given in Tables 7.2(A) and 7.2(B)

9. Temperature

For covered timber structures under ambient conditions, no modification for strength need be made for the effect of temperature (i.e., k_6 equals 1.0) except that where seasoned timber is used in structures erected in coastal regions of Queensland north of latitude 25°S, and all other regions of Australia north of latitude 16°S, the strength shall be modified by a factor k_6 of 0.9.

1.14 Storage and handling of SmartLVL

- Store SmartLVL flat on a hard, dry surface
- If surface isn't paved, the ground should be covered with a polythene film
- Keep covered with waterproof material that allows bundles to "breathe"
- Use bearers (bolsters) between the ground and the first bundle (4 metre max spacing)
- Use 100 x 50 timber flat between bundles at same spacing as bolsters
- Take great care to rewrap remaining material after opening bundles
- LVL "grows" in thickness and depth when allowed to get wet....KEEP DRY!
- LVL with high MC has short term reduction in Characteristic Strengths KEEP DRY!
- Under NO circumstances is stored SmartLVL to be in contact with the ground.



1.15 SmartLVL 14 hanger details

Given the high load carrying capacity of SmartLVL, it is essential that the connection of SmartLVL to other structural members is considered carefully, with the industry practice of simple skew or end nailing of SmartLVL not recommended for anything but the lightest loads.

The list below contains the common light to medium duty

SmartLVL framing brackets stocked by Tilling Timber.

Member connections requiring capacities greater than those listed below can be designed by your own Engineer or SmartFrame Engineers, but any non-standard connection system designed by your own engineer or SmartFrame Engineers may take some time to be fabricated.

Tilling framing bracket code	Fixing to SUPPORTING beam	Design Capacity ϕN_j (kN) $1.2G+1.5Q_j$ (DL + FLL) JD4	Fixing to SUPPORTED beam	Wind Uplift ($k_1 = 1.14$)			
				Design Capacity ϕN_j (kN) $1.2G+1.5Q_j$ (DL + RLL) for Joint group			
				JD5	JD4	JD3	Max.
SLF3590, SLF4590	8 Nails	4.6	4 nails	3.2	3.7	5.3	6.0
	4 Screws	6.1	2 screws	3.5	5.0	5.0	5.0
SLF35120, SLF45120	12 Nails	6.4	6 nails	4.7	5.7	7.9	9.0
	6 Screws	9.1	4 screws	7.1	10.0	10.0	10.0
SLF35140, SLF45140	16 Nails	8.4	8 nails	6.2	7.5	10.6	12.0
	6 Screws	9.1	4 screws	7.1	10.0	10.0	10.0
SLF35180, SLF45180	20 Nails	10.3	10 nails	7.4	8.9	12.4	15.0*
	8 Screws	12.1	6 Screws	10.6	15.0*	15.0*	15.0*
SLF45220	26 Nails	13.1	13 nails	9.5	11.3	15.0*	15.0*
	10 Screws	14.2	8 Screws	14.2	15.0*	15.0*	15.0*
SLF60130	12 Nails	6.4	3 nails	2.4	2.8	3.9	4.5
	4 screws	6.1	7 nails	5.4	6.6	9.3	10.5
			4 screws	7.1	10.0	10.0	10.0
SLF65170	18 Nails	9.3	6 nails	4.7	5.7	7.9	9.0
	6 screws	9.1	11 nails	8.1	9.8	13.6	15.0*
			6 screws	10.6	15.0*	15.0*	15.0*
SLF90200	26 Nails	12.9	3 nails	2.4	2.8	3.9	4.5
	10 Screws	14.2	13 nails	9.6	11.6	15.0*	15.0*
			8 screws	14.2	15.0*	15.0*	15.0*
SPH180 (pair)	6 No 14 x 30 screws [‡]	119	6 No 14 x 30 screws [‡]	13.3	18.8	20.4	20.4
	12 No 14 x 30 screws [‡]	29.3	12 No 14 x 30 screws [‡]	24.5	34.6	37.8	37.8
SPH220 (pair)	10 No 14 x 30 screws [‡]	13.4	10 No 14 x 30 screws [‡]	15.7	22.1	25.5	25.5
	20 No 14 x 30 screws [‡]	25.6	20 No 14 x 30 screws [‡]	30.0	42.3	46.0	46.0
SPH300 (pair)	14 No 14 x 30 screws [‡]	18.5	14 No 14 x 30 screws [‡]	19.3	30.6	49.2	49.2
	28 No 14 x 30 screws [‡]	37.0	28 No 14 x 30 screws [‡]	38.7	61.2	65.0	65.0
SPH360 (pair)	16 No 14 x 30 screws [‡]	21.6	16 No 14 x 30 screws [‡]	22.6	35.8	57.5	57.5
	32 No 14 x 30 screws [‡]	43.3	32 No 14 x 30 screws [‡]	45.3	65.0	65.0	65.0

[‡] in each face of joist hanger

Notes:

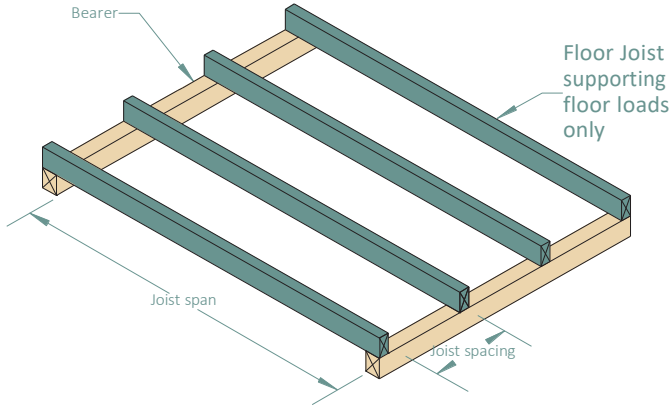
- For this table, SmartLVL has been given a uniform JD4 Joint Strength Group. For more detailed calculations of joint strength group in particular planes contact the Techsupport Helpline on 1300 668 690
- The above tabulated capacities are for a minimum beam thickness of 35 mm
- Wind uplift capacities apply to designs in accordance with AS/NZS 1170:2002
- SLF Framing Bracket capacity has been limited to 15.0 kN shown *
- These capacities apply directly for joints in houses and on secondary beams in other structures. For joints on primary beams in structures other than houses, reduce the capacity by $0.85/0.95 = 0.89$
- Multiple laminated supporting beams - fasteners with longer lengths are required when Joist Hangers are fixed into a multiple laminated supporting beam. For double laminates, use 65 long nails or screws. Alternatively, for double or triple laminated supporting beams, additional fixings may be provided at hanger locations to laminate plies. Seek advice from the Engineer.

2. Index of Span Tables

Floor Joists supporting floor Loads only - 40 kg/m ²	20
Bearers supporting floor Joists only - 40 kg/m ²	
- Single span	21
- Continuous span	22
Bearers supporting single storey load bearing wall	
- Single span	23
- Continuous span	24
Bearers supporting double storey load bearing wall	
- Single span	25
- Continuous span	26
Lintels in single or upper storey walls	
- wind classification N1-N4	27
- wind classification C1-C3	28
Lintels in lower storey walls	29
Roof beam/Rafters with ceiling	
- wind classification N1-N4	31
- wind classification C1-C3	33
Roof beam/Rafters without ceiling	
- wind classification N1-N4	35
- wind classification C1-C3	37
Roof Beams - Ridge or Intermediate Beams—wind classification N1-N4	
- Single span	38
- Continuous span	40
Roof Beams - Ridge or Intermediate Beams—wind classification C1-C3	
- Single span	41
- Continuous span	42
Verandah Beams - wind classification N1-N4	
- Single span	43
- Continuous span	44
Verandah Beams - wind classification C1-C3	
- Single span	46
- Continuous span	47
Hip Rafters	49
Underpurlins	
- wind classification N1-N4	50
- wind classification C1-C3	50
Hanging Beams	
- wind classification N1-N4	51
- wind classification C1-C3	51
Counter Beam (supporting Hanging Beams)	
- wind classification N1-N4	52
- wind classification C1-C3	53
Strutting Beam (supporting Underpurlins)	
- wind classification N1-N4	54
- wind classification C1-C3	54
Strutting Counter Beam (supporting Underpurlins & Hanging Beams)	
- wind classification N1-N4	55
- wind classification C1-C3	56
Strutting Hanging Beam (supporting Underpurlins and ceiling)	
- wind classification N1-N4	57
- wind classification C1-C3	58
Ceiling Joists	59

Floor joists supporting floor loads only

Floor mass - 40 kg/m²



EXAMPLE:

domestic floor loads
single span
joist spacing = 450 mm
joist span = 3500 mm

Enter single span table at 450 mm in joist spacing column, read down to a span equal to or greater than 3500 mm

ADOPT:

SmartLVL 14 - 190x45

Loadings: permanent - self weight + 40 kg/m² + 0.5 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN

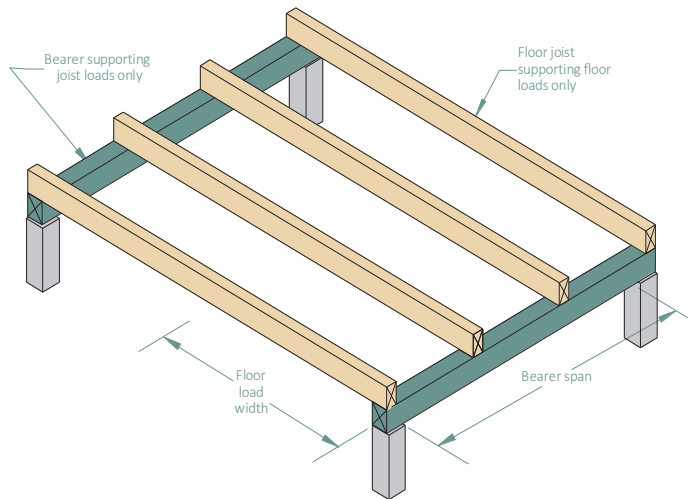
Joist spacing (mm)	300	400	450	600	300	400	450	600
Member size DxB (mm)	Maximum recommended floor joist span (mm)							
	Single span				Continuous span			
90x45	2100	1900	1800	1700	2600	2300	2100	1900
140x45	3900	3200	3000	2700	4500	4000	3600	3200
190x45	4900	4500	4300	3800	5700	5300	5100	4500
240x45	5800	5400	5300	4900	6700	6300	6100	5700
290x45	6700	6200	6100	5600	7800	7300	7100	6500
300x45	6900	6400	6200	5800	8000	7500	7200	6700
360x45	7900	7400	7100	6600	9200	8600	8300	7700
90x63	2500	2100	2000	1900	3200	2600	2400	2200
140x63	4200	3600	3400	3100	4900	4600	4200	3600
190x63	5300	4900	4800	4300	6200	5700	5600	5100
240x63	6300	5900	5700	5300	7400	6900	6700	6200
290x63	7300	6800	6600	6100	8500	7900	7700	7100
300x63	7500	7000	6800	6300	8700	8100	7900	7300
360x63	8500	8000	7800	7200	10500	9300	9000	8400

NOTES:

- Spans are suitable for solid timber, particle board and ply flooring. floor sheeting glued and nailed to joists will improve floor rigidity. Where heavy overlay material is to be applied, such as a mortar bed tiled or slate floor, the permanent load allowance should be increased to 1.2 kPa. A reduction of joist spacing may be used to accommodate this extra permanent load. A satisfactory result can be achieved by adopting the maximum spans for 600 mm and 450 mm spacing but installing the joists at 450 and 300 mm spacing respectively
- For beams which are continuous over two unequal spans, the design span and the 'resultant span description' depend upon the percentage span differences between the two spans as shown on page 2
- D = member depth, B = member breadth, NS = not suitable
- End bearing lengths = 45 mm at end supports and 63 mm at internal supports for continuous members
- Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

Single span floor bearers supporting floor loads only

Floor mass - 40 kg/m²



EXAMPLE:

single span bearer = 4000 mm
floor load width = 6000 mm

Enter single span table at 6000 mm in floor load width column, read down to a span equal to or greater than 4000 mm

ADOPT:

SmartLVL 14 - 2/360 x 45

Loadings: permanent - self weight + 40 kg/m² + 0.5 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN

Floor load width (mm)	1200	1800	2400	3000	3600	4200	4800	5400	6000	6600
Member size DxB (mm)	Maximum recommended bearer span (mm)									
	Single span									
90x45	1600	1400	1300	1200	1100	1000	1000	NS	NS	NS
140x45	2500	2200	2000	1800	1700	1600	1500	1500	1400	1400
190x45	3400	3000	2700	2500	2300	2200	2100	2000	1900	1900
240x45	4100	3700	3400	3200	3000	2800	2700	2500	2400	2400
290x45	4700	4300	4000	3800	3600	3400	3200	3100	3000	2900
300x45	4900	4400	4100	3900	3700	3500	3300	3200	3100	3000 ₅
360x45	5600	5000	4700	4400	4200	4000	3900	3800 ₅	3700 ₁₀	3600 ₂₀
2/90x45	2000	1800	1600	1500	1400	1300	1200	1200	1100	1100
2/140x45	3200	2800	2500	2300	2200	2000	1900	1900	1800	1700
2/190x45	4100	3700	3400	3100	2900	2800	2700	2500	2400	2300
2/240x45	4800	4400	4100	3900	3700	3500	3400	3200	3100	3000
2/290x45	5600	5100	4700	4400	4200	4100	3900	3800	3700	3600
2/300x45	5700	5200	4800	4600	4400	4200	4000	3900	3800	3700
2/360x45	6500	5900	5500	5200	5000	4800	4600	4500	4300	4200
90x63	1800	1600	1400	1300	1200	1100	1100	1000	1000	1000
140x63	2800	2500	2200	2000	1900	1800	1700	1600	1600	1500
190x63	3700	3300	3000	2800	2600	2500	2400	2300	2200	2100
240x63	4500	4000	3700	3500	3300	3100	3000	2900	2700	2600
290x63	5100	4700	4300	4100	3900	3700	3600	3500	3300	3200
300x63	5300	4800	4400	4200	4000	3800	3700	3600	3400	3300
360x63	6000	5500	5100	4800	4600	4400	4200	4100	4000	3900

Continuous span floor bearers supporting floor loads only

Floor mass - 40 kg/m²

Loadings: permanent - self weight + 40 kg/m² + 0.5 kPa of the live load, live load - 1.5 kPa or floor point load of 1.8 kN

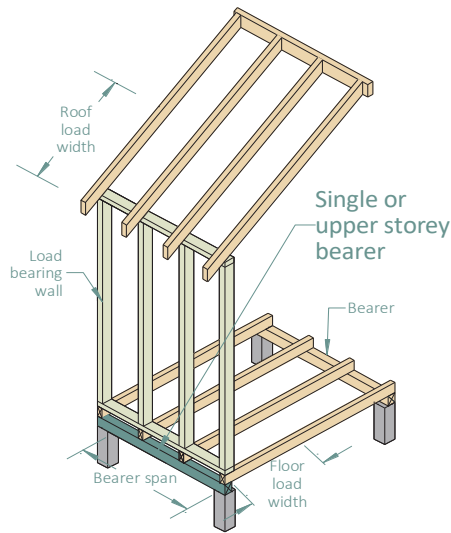
Floor load width (mm)	1200	1800	2400	3000	3600	4200	4800	5400	6000	6600
Member size DxB (mm)	Maximum recommended bearer span (mm)									
	Continuous span									
90x45	2000	1800	1600	1500	1400	1300	1300	1200	1100	1100
140x45	3200	2800	2500	2300	2200	2100	1900	1800	1700	1600
190x45	4000	3600	3400	3200	3000	2700 ₅	2600 ₁₀	2400 ₁₅	2300 ₂₅	2200 ₃₀
240x45	4800	4300	4000	3800	3600 ₁₅	3400 ₂₅	3200 ₃₅	3000 ₅₀	2800 ₆₅	2700 ₇₀
290x45	5500	5000	4600	4400 ₁₅	4200 ₃₀	4000 ₅₅	3800 ₇₅	3600 ₈₅	3400 ₉₅	3200 ₁₀₀
300x45	5700	5100	4700	4500 ₁₅	4300 ₃₅	4100 ₆₅	3900 ₈₀	3700 ₉₀	3500 ₁₀₀	3300 ₁₁₀
360x45	6500	5800	5400 ₁₅	5100 ₃₅	4900 ₆₅	4700 ₉₀	4600 ₁₀₅	4300 ₁₂₀	4100 ₁₃₅	3900 ₁₄₅
2/90x45	2600	2200	2000	1900	1800	1700	1600	1500	1500	1400
2/140x45	3800	3400	3200	2900	2800	2600	2500	2400	2300	2200
2/190x45	4800	4300	4000	3800	3600	3500	3400	3300	3200	3100
2/240x45	5700	5100	4800	4500	4300	4100	4000	3900	3800	3700 ₁₀
2/290x45	6600	5900	5500	5200	5000	4800	4600	4500 ₁₀	4400 ₂₀	4300 ₃₀
2/300x45	6700	6100	5600	5300	5100	4900	4700 ₅	4600 ₁₀	4500 ₂₀	4400 ₃₀
2/360x45	7700	6900	6500	6100	5900	5600 ₅	5400 ₁₅	5300 ₂₅	5100 ₄₀	5000 ₆₅
90x63	2300	2000	1800	1700	1600	1500	1400	1300	1300	1300
140x63	3500	3100	2800	2600	2400	2300	2200	2100	2000	1900
190x63	4400	3900	3700	3500	3300	3200	3000	2800	2700 ₅	2600 ₁₀
240x63	5200	4700	4400	4100	3900	3800	3700 ₁₀	3500 ₂₀	3300 ₃₀	3200 ₃₅
290x63	6000	5400	5000	4800	4500 ₅	4400 ₁₅	4200 ₃₀	4100 ₄₀	4000 ₆₅	3800 ₇₅
300x63	6200	5500	5200	4900	4700 ₅	4500 ₁₅	4300 ₃₅	4200 ₅₀	4100 ₇₀	3900 ₈₀
360x63	7100	6400	5900	5600 ₅	5400 ₂₀	5100 ₃₅	5000 ₆₅	4800 ₈₀	4700 ₉₀	4600 ₁₀₅

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a maximum DL of 40 kg/m² + 0.5 kPa of LL, floor live load of 1.5 kPa, floor point load of 1.8 kN
3. End bearing lengths = 70 mm at end supports and 90 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 70 mm at end supports and 90 mm at internal supports
4. Restraint value for slenderness calculations is 600 mm (floor joist centres at 600 mm max)
5. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Floor bearers supporting single storey load bearing wall - sheet and tiled roof

Floor mass - 40 kg/m²



EXAMPLE:

sheet roof - 40 kg/m²
 roof load width = 1950 mm
 bearer span = 3000 mm (single span)
 floor load width = 2200 mm

Enter single span table at 2400 mm in floor load width column, 4500 roof load width column, read down to a span equal to or greater than 3000 mm in the 40 kg/m² row.

ADOPT:

SmartLVL 14—2/240x45

Single span

Floor load width (mm)		1200			2400			4800		
Roof load width (mm)		1500	4500	7500	1500	4500	7500	1500	4500	7500
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended single span floor bearer supporting single storey load bearing wall span (mm)								
2/90x45	40	1500	1300	1100	1300	1200	1100	1100	1000	1000
	90	1400	1100	1000	1300	1100	NS	1100	1000	NS
2/140x45	40	2400	2000	1800	2100	1900	1700	1800	1600	1500
	90	2200	1800	1500	2000	1700	1500	1700	1500	1400
2/190x45	40	3200	2800	2400	2800	2500	2300	2400	2200	2100
	90	3000	2400	2100	2700	2300	2000	2300	2100	1900
2/240x45	40	3900	3500	3100	3600	3200	2900	3000	2800	2600
	90	3700	3000	2600	3400	2900	2500	2900	2600	2400
2/290x45	40	4500	4000	3700	4100	3800	3500	3700	3400	3200
	90	4300	3600	3200	4000	3500	3100	3600	3200	2900
2/300x45	40	4600	4200	3800	4200	3900	3600	3700	3600	3300
	90	4400	3700	3300	4100	3600	3200	3600	3300	3000
2/360x45	40	5300	4800	4400	4900	4500	4200	4300	4100	3900
	90	5000	4300	3900	4700	4100	3800	4200	3800	3600
90x63	40	1300	1100	1000	1200	1000	NS	1000	NS	NS
	90	1200	1000	NS	1100	NS	NS	NS	NS	NS
140x63	40	2100	1800	1600	1900	1700	1500	1600	1500	1300
	90	1900	1600	1300	1700	1500	1300	1500	1300	1200
190x63	40	2800	2500	2200	2500	2300	2000	2100	2000	1800
	90	2600	2100	1800	2400	2000	1800	2100	1800	1700
240x63	40	3600	3100	2700	3200	2900	2600	2700	2500	2300
	90	3300	2700	2300	3000	2600	2300	2600	2300	2100
290x63	40	4100	3700	3300	3800	3500	3100	3300	3100	2800
	90	3900	3300	2800	3600	3100	2700	3200	2800	2600
300x63	40	4200	3800	3400	3900	3600	3300	3400	3200	2900
	90	4000	3400	2900	3700	3200	2800	3300	2900	2600
360x63	40	4900	4400	4000	4500	4100	3800	3900	3700	3500
	90	4600	3900	3500	4300	3800	3400	3800	3500	3200

Floor bearers supporting single storey load bearing wall - sheet and tiled roof

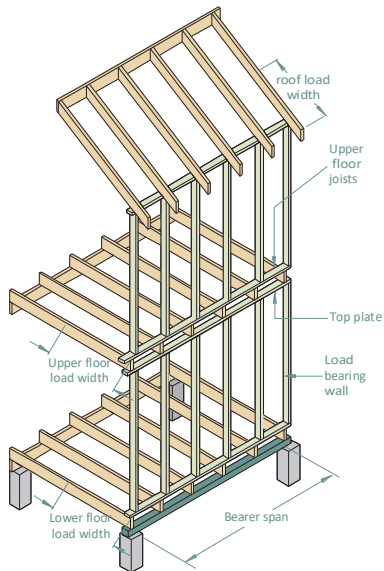
Continuous span

Floor load width (mm)		1200			2400			4800		
Roof load width (mm)		1500	4500	7500	1500	4500	7500	1500	4500	7500
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Continuous span floor bearer supporting single storey load bearing wall span (mm)								
2/90x45	40	2100	1800	1600	1800	1600	1500	1500	1400	1300
	90	1900	1500	1300	1700	1400	1300	1500	1300	1200
2/140x45	40	3200	2800	2400	2900	2600	2300	2400	2200	2100
	90	3000	2400	2100	2700	2300	2000	2300	2100	1900
2/190x45	40	4100	3700	3300	3800	3500	3100	3300	3100	2800
	90	3900	3300	2800	3600	3100	2700	3200	2800	2600
2/240x45	40	4900	4400	4000	4500	4200	3900	4000	3800 ₅	3600 ₁₀
	90	4700	4000	3600	4300	3800	3500 ₅	3900	3600 ₁₀	3200 ₂₅
2/290x45	40	5700	5100	4700	5200	4800	4500	4600 ₁₅	4400 ₁₅	4100 ₃₀
	90	5400	4600	4100 ₁₀	5000	4400	4000 ₂₀	4500 ₁₅	4100 ₃₀	3800 ₅₀
2/300x45	40	5800	5200	4800	5300	4900	4600	4700 ₁₅	4500 ₂₀	4300 ₃₀
	90	5500	4700	4300 ₁₅	5100	4500	4100 ₂₅	4600 ₁₅	4200 ₃₅	3900 ₆₀
2/360x45	40	6700	6000	5500	6100	5600	5300 ₁₀	5400 ₃₅	5100 ₄₅	4900 ₆₀
	90	6300	5400	4900 ₃₀	5900	5200 ₁₀	4700 ₅₀	5300 ₃₅	4800 ₆₅	4500 ₈₅
90x63	40	1800	1600	1400	1600	1400	1300	1400	1300	1200
	90	1700	1400	1200	1500	1300	1100	1300	1200	1000
140x63	40	2900	2500	2200	2500	2300	2000	2100	2000	1800
	90	2600	2100	1800	2400	2000	1800	2100	1800	1700
190x63	40	3800	3300	3000	3400	3100	2800	2800	2700 ₅	2500 ₁₀
	90	3600	2900	2500	3300	2800	2400 ₅	2800	2500 ₁₀	2300 ₂₅
240x63	40	4500	4100	3700	4100	3800	3500 ₅	3500 ₂₀	3300 ₃₀	3100 ₃₅
	90	4300	3700	3200 ₂₀	4000	3500 ₅	3100 ₃₀	3400 ₂₅	3100 ₄₀	2800 ₆₅
290x63	40	5200	4700	4300 ₅	4800	4400 ₅	4100 ₂₀	4200 ₅₀	4000 ₆₅	3700 ₇₅
	90	4900	4200 ₅	3800 ₅₀	4600	4000 ₂₅	3700 ₇₀	4100 ₆₀	3700 ₇₅	3400 ₉₅
300x63	40	5300	4800	4400 ₅	4900	4500 ₅	4200 ₂₀	4300 ₆₀	4100 ₇₀	3800 ₈₀
	90	5000	4300 ₁₀	3900 ₆₀	4700	4100 ₂₅	3800 ₇₅	4200 ₆₅	3800 ₈₀	3500 ₁₀₀
360x63	40	6100	5500	5000 ₂₀	5600 ₅	5200 ₂₀	4800 ₄₀	5000 ₈₅	4700 ₉₅	4500 ₁₀₅
	90	5800	5000 ₂₅	4500 ₈₀	5400 ₁₅	4800 ₅₀	4300 ₁₀₀	4800 ₉₀	4400 ₁₁₀	4100 ₁₃₀

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on total ground floor mass of 40 kg/m² + 0.5 kPa of LL, wall mass of 37 kg/m², floor live load of 1.5 kPa, floor point load of 1.8 kN
3. The above table was based on a wall height of 2700 mm
4. End bearing lengths = 70 mm at end supports and 90 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 70 mm at end supports and 90 mm at internal supports.
5. Restraint value for slenderness calculations is 600 mm
6. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span floor bearer supporting double storey load bearing wall - sheet and tile roof



EXAMPLE:

sheet roof - 40 kg/m²
 roof load width = 1950 mm
 bearer span = 3100 mm (single span)
 lower floor load width = 3500 mm
 upper floor load width = 1500 mm

Enter single span table at 3600 mm in lower floor load width column, 1800 mm in upper floor width column, 4500 mm roof load width column, read down to a span equal to or greater than 3100 mm in the 40 kg/m² row.

ADOPT:

SmartLVL 14 - 2/290x45

Lower floor load width (mm)		1800						3600					
Upper floor load width (mm)		1800			3600			1800			3600		
Roof load width (mm)		1500	4500	7500	1500	4500	7500	1500	4500	7500	1500	4500	7500
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended floor bearer supporting double loadbearing wall span (mm)											
		Single span											
2/90x45	40	1200	1100	1000	1100	1000	NS	1100	1000	NS	1000	NS	NS
	90	1100	1000	NS	1000	NS	NS	1000	NS	NS	NS	NS	NS
2/140x45	40	1800	1700	1600	1700	1600	1500	1700	1600	1500	1600	1500	1400
	90	1800	1500	1400	1600	1500	1300	1600	1500	1300	1500	1400	1300
2/190x45	40	2500	2300	2100	2300	2100	2000	2300	2200	2000	2100	2000	1900
	90	2400	2100	1900	2200	2000	1800	2200	2000	1800	2100	1900	1800
2/240x45	40	3200	2900	2700	2900	2700	2500	2900	2700	2600	2700	2600	2400
	90	3000	2700	2400	2800	2500	2300	2800	2500	2300	2600	2400	2200
2/290x45	40	3800	3500	3300	3500	3300	3100	3500	3300	3100	3300	3100	2900
	90	3600	3200	2900	3400	3100	2800	3400	3100	2800	3200	2900	2700
2/300x45	40	3900	3600	3400	3600	3400	3200	3600	3400	3200	3400	3200	3000
	90	3700	3400	3000	3500	3200	2900	3500	3200	2900	3300	3000	2800
2/360x45	40	4400	4200	3900	4100	3900	3800	4200	4000	3800	3900	3800	3600
	90	4300	3900	3600	4000	3700	3500	4100	3800	3500	3900	3600	3400
140x63	40	1600	1500	1400	1500	1400	1300	1500	1400	1300	1400	1300	1200
	90	1600	1400	1200	1400	1300	1200	1400	1300	1200	1300	1200	1100
190x63	40	2200	2000	1900	2000	1900	1800	2000	1900	1800	1900	1800	1700
	90	2100	1900	1700	2000	1800	1600	2000	1800	1600	1800	1700	1600
240x63	40	2800	2600	2400	2600	2400	2300	2600	2400	2300	2400	2300	2200
	90	2700	2400	2100	2500	2200	2000	2500	2200	2100	2300	2100	2000
290x63	40	3400	3100	2900	3100	2900	2700	3100	2900	2800	2900	2800	2600
	90	3300	2900	2600	3000	2700	2500	3000	2700	2500	2800	2600	2400
300x63	40	3500	3300	3000	3200	3000	2800	3200	3000	2800	3000	2900	2700
	90	3400	3000	2700	3100	2800	2600	3100	2800	2600	2900	2700	2500
360x63	40	4000	3800	3600	3800	3600	3400	3800	3600	3400	3600	3400	3300
	90	3900	3600	3200	3700	3400	3100 ₅	3700	3400	3100 ₅	3500	3200	3000 ₁₀

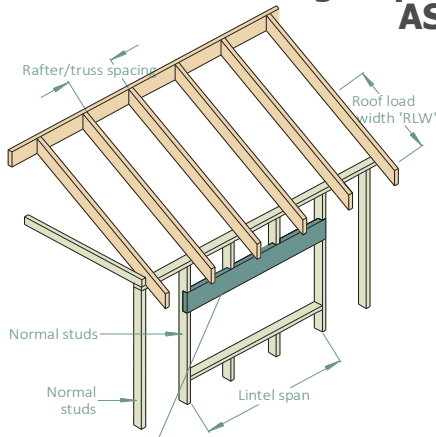
Continuous span floor bearer supporting double storey load bearing wall - sheet & tile roof

Lower floor load width (mm)		1800						3600					
Upper floor load width (mm)		1800			3600			1800			3600		
Roof load width (mm)		1500	4500	7500	1500	4500	7500	1500	4500	7500	1500	4500	7500
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended floor bearer supporting double loadbearing wall span (mm)											
		Continuous span											
2/90x45	40	1600	1500	1400	1400	1400	1300	1500	1400	1300	1400	1300	1200
	90	1500	1300	1200	1400	1300	1200	1400	1300	1200	1300	1200	1100
2/140x45	40	2500	2300	2100	2300	2100	2000	2300	2200	2000	2100	2000	1900
	90	2400	2100	1900	2200	2000	1800	2200	2000	1800	2100	1900	1800
2/190x45	40	3400	3100	2900	3100	2900	2700	3100	2900	2800	2900	2800	2600
	90	3300	2900	2600	3000	2700	2500	3000	2700	2500	2800	2600	2400 ₁₀
2/240x45	40	4100	3900	3700	3800	3700	3500 ₁₀	3900	3700	3500 ₅	3600 ₁₀	3500 ₁₅	3300 ₂₀
	90	4000	3600	3300 ₁₅	3700	3400 ₁₀	3200 ₃₀	3800	3500 ₁₀	3200 ₃₀	3600 ₁₀	3300 ₂₀	3000 ₄₅
2/290x45	40	4700	4500	4200 ₁₀	4400	4200 ₁₀	4000 ₂₅	4400 ₁₀	4200 ₂₀	4000 ₂₅	4200 ₂₅	4100 ₃₀	3900 ₄₀
	90	4600	4200 ₁₀	3900 ₃₅	4300 ₅	4000 ₃₀	3700 ₆₅	4300 ₁₅	4000 ₃₀	3800 ₆₅	4100 ₃₀	3900 ₄₅	3700 ₈₀
2/300x45	40	4900	4600	4300 ₁₀	4500	4300 ₁₅	4100 ₃₀	4600 ₁₅	4400 ₂₀	4200 ₃₀	4300 ₃₀	4200 ₃₅	4000 ₄₅
	90	4700	4300 ₁₅	4000 ₄₅	4400 ₁₀	4100 ₃₀	3800 ₇₀	4500 ₁₅	4100 ₃₀	3900 ₇₀	4200 ₃₀	4000 ₅₅	3700 ₈₅
2/360x45	40	5600	5300 ₁₀	5000 ₃₀	5200 ₁₅	5000 ₃₀	4700 ₆₀	5200 ₃₀	5000 ₃₅	4800 ₅₅	5000 ₅₅	4800 ₆₅	4600 ₇₅
	90	5400	4900 ₃₀	4600 ₇₅	5100 ₂₀	4700 ₆₅	4400 ₉₅	5100 ₃₅	4700 ₆₅	4400 ₉₀	4900 ₆₅	4600 ₈₀	4300 ₁₁₀
90x63	40	1400	1300	1200	1300	1200	1100	1300	1200	1100	1200	1100	1100
	90	1400	1200	1100	1200	1100	1000	1200	1100	1000	1200	1100	1000
140x63	40	2200	2000	1900	2000	1900	1800	2000	1900	1800	1900	1800	1700
	90	2100	1900	1700	2000	1800	1600	2000	1800	1600	1800	1700	1500
190x63	40	3000	2800	2600	2800	2600	2400 ₁₀	2800	2600 ₅	2400 ₁₀	2600 ₁₀	2400 ₁₅	2300 ₂₀
	90	2900	2600	2300 ₁₅	2700	2400 ₁₀	2200 ₂₅	2700	2400 ₁₀	2200 ₂₅	2500 ₁₀	2300 ₂₀	2100 ₃₅
240x63	40	3800	3500 ₅	3300 ₂₀	3500 ₁₀	3300 ₂₀	3100 ₃₅	3500 ₂₀	3300 ₃₀	3100 ₃₅	3200 ₃₅	3000 ₄₅	2900 ₅₅
	90	3600	3200 ₂₅	2900 ₅₅	3400 ₁₅	3100 ₄₀	2700 ₇₀	3400 ₂₅	3100 ₄₀	2700 ₇₀	3100 ₃₅	2900 ₆₅	2600 ₈₀
290x63	40	4300 ₅	4100 ₂₀	3900 ₄₅	4000 ₃₀	3900 ₅₀	3700 ₇₅	4100 ₅₀	3900 ₆₅	3700 ₇₅	3800 ₇₀	3600 ₈₀	3500 ₉₀
	90	4200 ₁₀	3800 ₅₀	3500 ₉₀	4000 ₃₅	3700 ₈₀	3200 ₁₀₀	4000 ₅₅	3700 ₈₀	3300 ₁₀₀	3700 ₇₅	3400 ₉₀	3100 ₁₁₅
300x63	40	4400 ₁₀	4200 ₂₀	4000 ₅₀	4200 ₃₀	4000 ₅₅	3800 ₈₀	4200 ₅₀	4000 ₆₅	3800 ₈₀	3900 ₇₅	3800 ₈₅	3600 ₉₅
	90	4300 ₁₅	3900 ₆₀	3600 ₉₅	4100 ₄₀	3800 ₈₅	3300 ₁₀₅	4100 ₆₅	3800 ₈₅	3400 ₁₀₅	3800 ₈₀	3500 ₉₅	3200 ₁₂₀
360x63	40	5100 ₂₅	4800 ₄₅	4500 ₈₀	4800 ₆₅	4500 ₈₅	4300 ₁₀₅	4800 ₈₀	4600 ₉₀	4400 ₁₀₅	4500 ₁₀₅	4400 ₁₁₅	4200 ₁₂₅
	90	4900 ₃₀	4500 ₈₅	4200 ₁₂₅	4700 ₇₀	4300 ₁₁₀	4000 ₁₄₅	4700 ₈₅	4300 ₁₁₀	4000 ₁₄₀	4400 ₁₁₀	4200 ₁₃₀	3700 ₁₅₅

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on total upper floor mass of 40 kg/m², total ground floor mass of 30 kg/m², floor live load of 1.5 kPa, floor point load of 1.8 kN, wall mass of 37 kg/m², and permanent floor live load of 0.5 kPa.
3. The above table was based on a wall height of 5400 mm
4. End bearing lengths = 70 mm at end supports and 90 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 70 mm at end supports and 90 mm at internal supports.
5. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span lintels in single/upper storey walls AS 4055 classification N1 - N4



Single/Upper storey lintel

EXAMPLE:

wind speed = N3
sheet roof - 40 kg/m²
rafter/truss spacing = 600 mm
lintel span = 3500 mm
roof load width = 3900 mm
Enter span table at 4500 roof load width column, rafter/truss spacing 600 mm, and read down to a span equal to or greater than 3500 mm in the 40 kg/m² row

ADOPT:

SmartLVL 14 - 290x45
(requires an additional 5 mm of bearing)

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/Truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Lintel span (mm)									
		Single span									
140x45	40	3000	3000	2300	2300	2000	2000	1800	1700	1600	1500 ₅
	90	2300	2300	1800	1800	1500	1500	1400	1200	1300	1000 ₅
190x45	40	3700	3700	3100	3100	2700	2700	2400	2400 ₁₀	2200 ₁₀	2200 ₁₀
	90	3100	3100	2400	2500	2100	2100	1900 ₁₀	1900 ₅	1700 ₂₀	1700 ₁₅
240x45	40	4400	4400	3700	3700	3300	3300	3000 ₅	3000 ₁₀	2800 ₁₀	2800 ₂₅
	90	3700	3700	3100	3100	2700	2700 ₁₅	2400 ₁₀	2400 ₂₀	2200 ₂₅	2200 ₂₀
290x45	40	5100	5100	4300	4300	3800 ₅	3800 ₅	3500 ₁₀	3500 ₁₅	3300 ₂₅	3200 ₂₀
	90	4200	4200	3500	3500	3200 ₁₀	3200 ₁₀	2900 ₁₅	2900 ₂₅	2700 ₂₀	2700 ₃₅
300x45	40	5200	5200	4400	4400	3900 ₅	3900 ₅	3600 ₂₀	3600 ₁₅	3300 ₂₅	3300 ₂₅
	90	4400	4300	3600	3600	3300 ₁₀	3300 ₁₀	3000 ₁₅	3000 ₂₅	2800 ₂₅	2800 ₄₅
360x45	40	6000	5900	5000	5000	4500 ₁₀	4500 ₁₀	4100 ₂₅	4100 ₁₅	3800 ₃₅	3800 ₃₀
	90	5000	5000	4200 ₅	4200 ₁₀	3800 ₂₀	3700 ₁₀	3500 ₂₅	3400 ₂₅	3300 ₅₀	3200 ₄₀
2/90x45	40	2400	2500	1900	1900	1600	1500	1400	1300	1300	1100
	90	1900	1900	1400	1300	1200	1100	1000	NS	NS	NS
2/140x45	40	3500	3500	2900	2900	2500	2600	2200	2200	2000	2000
	90	2900	2900	2300	2300	2000	2000	1800	1700	1600	1500
2/190x45	40	4400	4400	3700	3600	3300	3300	3000	3000	2700	2800
	90	3700	3600	3100	3100	2700	2700	2400	2400	2200	2200
2/240x45	40	5200	5200	4400	4400	3900	3900	3600	3600	3300	3300
	90	4300	4300	3700	3600	3300	3300	3000	3000	2800	2800 ₅
2/290x45	40	5900	5900	5000	5000	4500	4500	4100	4100	3900	3900
	90	5000	5000	4200	4200	3800	3800	3500	3500	3300 ₅	3300 ₅
2/300x45	40	6100	6000	5100	5200	4600	4600	4200	4200	4000	4000
	90	5100	5100	4300	4300	3900	3900	3600	3600	3400 ₅	3400 ₅
2/360x45	40	6900	6900	5900	5900	5300	5300	4900	4900 ₅	4500 ₅	4500 ₅
	90	5900	5800	5000	4900	4500	4500	4100 ₅	4100 ₁₀	3900 ₁₀	3900 ₅
90x63	40	2100	2200	1700	1600	1400	1300	1200	1100	1100	1000
	90	1700	1600	1300	1100	1000	NS	NS	NS	NS	NS
140x63	40	3200	3200	2600	2600	2200	2200	2000	2000	1800	1800
	90	2600	2600	2100	2000	1700	1700	1500	1500	1400	1300
190x63	40	4000	4000	3400	3300	3000	3000	2700	2700	2400	2500 ₅
	90	3300	3300	2700	2800	2400	2400	2200	2100	2000 ₅	1900 ₅
240x63	40	4800	4800	4000	4000	3600	3600	3300	3300	3100 ₁₀	3100 ₅
	90	4000	4000	3300	3300	3000	3000	2700	2800 ₁₀	2500 ₅	2500 ₁₅
290x63	40	5500	5500	4600	4600	4100	4100	3800 ₅	3800	3500 ₅	3500 ₁₀
	90	4600	4600	3900	3800	3500	3400	3200 ₁₀	3200 ₁₀	3000 ₁₀	3000 ₂₀
300x63	40	5600	5600	4700	4700	4200	4200	3900 ₅	3900 ₅	3600 ₁₅	3600 ₁₀
	90	4700	4700	4000	4000	3600 ₅	3500	3300 ₁₀	3300 ₅	3100 ₁₀	3100 ₂₀
360x63	40	6400	6400	5400	5400	4900	4800 ₅	4500 ₁₀	4500 ₁₀	4200 ₂₀	4200 ₂₅
	90	5400	5400	4500	4500	4100 ₅	4100	3800 ₁₅	3800 ₁₀	3500 ₃₀	3500 ₂₀

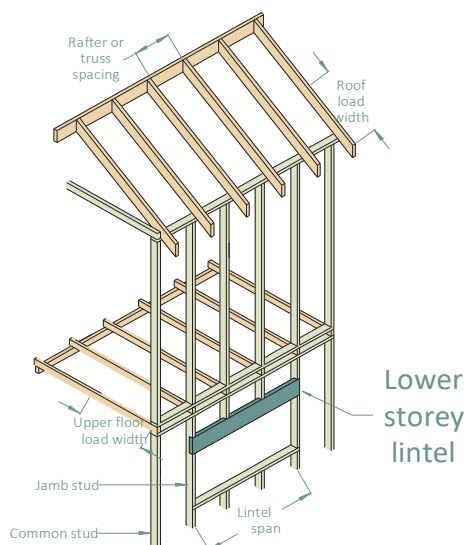
Single span lintels in single/upper storey walls AS 4055 classification C1 - C3

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/Truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Lintel span (mm)									
		Single span									
140x45	40	3000	3000	2100	2100	1700 ₅	1400 ₁₀	1200 ₁₀	NS	NS	NS
	90	2300	2400	1900	1800	1600 ₅	1400 ₂₀	1200 ₁₅	NS	NS	NS
190x45	40	3800	3700	2800	2800 ₁₀	2300 ₁₅	2300 ₁₅	2000 ₂₅	1700 ₂₀	1700 ₂₅	1200 ₂₀
	90	3100	3100	2500 ₅	2500 ₁₀	2200 ₂₀	2100 ₂₀	2000 ₃₅	1800 ₃₀	1700 ₅₅	1300 ₂₅
240x45	40	4500	4500	3600 ₁₅	3500 ₁₀	2900 ₁₅	2900 ₃₀	2500 ₂₅	2500 ₄₅	2200 ₅₀	1900 ₃₅
	90	3700	3700	3100 ₁₅	3100 ₁₅	2700 ₂₅	2800 ₄₅	2400 ₃₅	2500 ₆₀	2200 ₆₅	2200 ₅₅
290x45	40	5100	5200	4300 ₂₀	4300 ₂₀	3600 ₄₀	3400 ₃₀	3000 ₃₅	2900 ₅₅	2600 ₄₅	2700 ₆₅
	90	4300	4300	3600 ₁₅	3600 ₁₅	3200 ₄₀	3200 ₃₅	3000 ₄₅	2900 ₇₀	2600 ₅₅	2600 ₈₀
300x45	40	5300	5300	4400 ₁₅	4400 ₂₀	3700 ₄₀	3500 ₃₀	3100 ₃₅	3000 ₅₅	2700 ₄₅	2700 ₆₅
	90	4400	4400	3700 ₂₅	3700 ₂₀	3300 ₄₀	3300 ₃₅	3100 ₄₅	3000 ₆₅	2700 ₅₅	2700 ₈₀
360x45	40	6000 ₅	6000	5100 ₃₀	5000 ₃₀	4300 ₄₅	4300 ₅₅	3800 ₆₅	3600 ₅₀	3400 ₈₀	3200 ₇₅
	90	5000 ₅	5000 ₅	4200 ₃₀	4200 ₃₅	3800 ₅₅	3800 ₄₀	3500 ₆₅	3500 ₆₀	3300 ₁₀₀	3200 ₉₀
2/90x45	40	2400	2500	1900	1900	1600	1400	1400	1000	1100	NS
	90	1900	1900	1500	1300	1200	1100	1100	NS	NS	NS
2/140x45	40	3500	3500	2900	2900	2500	2600	2200	2200	2000 ₅	1900 ₅
	90	2900	2900	2300	2300	2000	2000	1800	1800	1600	1600 ₅
2/190x45	40	4400	4400	3700	3700	3300	3300	3000 ₁₀	3000 ₅	2700 ₁₀	2700 ₂₀
	90	3700	3700	3100	3100	2700	2800 ₅	2400 ₅	2500 ₁₅	2200 ₁₀	2200 ₁₅
2/240x45	40	5200	5200	4400	4400	3900 ₅	3900 ₁₀	3600 ₁₅	3600 ₁₀	3400 ₂₀	3400 ₂₀
	90	4400	4400	3700	3700	3300	3300 ₅	3100 ₂₀	3100 ₁₅	2800 ₁₅	2900 ₃₀
2/290x45	40	6000	6000	5100	5100	4500 ₅	4500 ₁₀	4200 ₂₀	4200 ₂₅	3900 ₃₀	3900 ₂₅
	90	5000	5100	4200	4300	3800 ₁₀	3800 ₅	3500 ₁₅	3500 ₁₅	3300 ₃₀	3300 ₂₅
2/300x45	40	6100	6100	5200	5200	4600 ₅	4600 ₁₀	4300 ₂₀	4300 ₂₅	4000 ₃₅	4000 ₂₅
	90	5200	5200	4400	4400	3900 ₁₀	3900 ₅	3600 ₂₅	3600 ₁₅	3400 ₃₀	3400 ₂₅
2/360x45	40	7000	6900	5900 ₅	5900	5300 ₁₅	5300 ₂₀	4900 ₂₀	4900 ₃₅	4600 ₃₀	4600 ₃₅
	90	5900	5900	5000 ₅	5000 ₅	4500 ₁₀	4500 ₁₅	4200 ₃₀	4200 ₃₅	3900 ₄₀	3900 ₃₀
90x63	40	2100	2200	1600	1300	1100	NS	NS	NS	NS	NS
	90	1700	1600	1300	1100	1000	NS	NS	NS	NS	NS
140x63	40	3200	3200	2500	2500	2000	2000	1700 ₁₀	1500 ₅	1500 ₁₀	1000 ₅
	90	2600	2700	2100	2000	1800 ₅	1700 ₅	1600 ₅	1500 ₁₅	1400 ₁₅	1100 ₁₀
190x63	40	4100	4100	3400	3300	2700 ₅	2700 ₁₀	2300 ₁₀	2300 ₁₅	2100 ₂₅	2100 ₂₀
	90	3400	3400	2800	2800	2400 ₅	2400 ₁₅	2200 ₂₀	2100 ₂₀	2000 ₃₀	2000 ₃₀
240x63	40	4800	4800	4000 ₅	4000 ₅	3500 ₂₀	3400 ₁₅	3000 ₁₅	2900 ₂₅	2600 ₂₅	2700 ₄₀
	90	4000	4000	3400	3400	3000 ₂₀	3000 ₁₅	2700 ₂₀	2800 ₄₀	2500 ₃₀	2500 ₅₀
290x63	40	5500	5500	4700 ₅	4600 ₅	4200 ₂₅	4100 ₂₅	3700 ₄₀	3500 ₃₀	3200 ₄₅	3100 ₄₀
	90	4600	4600	3900 ₁₀	3900 ₅	3500 ₁₅	3500 ₂₀	3200 ₄₀	3200 ₃₅	3000 ₄₀	3000 ₅₅
300x63	40	5700	5700	4800 ₅	4800 ₁₅	4300 ₂₀	4300 ₂₅	3800 ₄₀	3600 ₃₀	3400 ₄₅	3200 ₄₀
	90	4800	4800	4000 ₁₀	4000 ₅	3600 ₃₀	3600 ₂₀	3300 ₃₅	3300 ₃₅	3100 ₆₀	3100 ₅₅
360x63	40	6500	6500	5500 ₁₅	5500 ₁₅	4900 ₂₅	4900 ₃₅	4400 ₄₅	4400 ₄₅	4000 ₅₅	3900 ₄₅
	90	5400	5400	4600 ₁₀	4600 ₁₀	4100 ₃₅	4100 ₄₀	3800 ₅₀	3800 ₄₀	3600 ₇₀	3600 ₅₅

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. Minimum bearing length = 35 mm at end supports. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm.
3. Restraint value for slenderness calculations is 600 mm.
4. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span lintels in lower storey walls AS 4055 classification N1 - N4 & C1



EXAMPLE:

wind speed = N4
sheet roof - 40 kg/m²
rafter/truss spacing = 600 mm
lintel span = 3500 mm
roof load width = 3900 mm
floor load width = 1200 mm
Enter the span table at 4500 roof load width column, floor load width 1200 mm, and read down to a span equal to or greater than 3500 mm in the 40 kg/m² row

ADOPT:

SmartLVL 14- 360x45
(additional 30 mm bearing required)

Roof load width (mm)	1500			3000			4500			6000			
floor load width (mm)	1200	2400	3600	1200	2400	3600	1200	2400	3600	1200	2400	3600	
Member size DxB (mm)	Maximum recommended Lintel span (mm) - Sheet roof												
	Single span												
140x45	40	1900	1700	1600	1800	1600	1500	1700	1500	1400	1600	1500	1400
	90	1800	1600	1500	1600	1500	1400	1400	1400	1300	1300	1300	1200
190x45	40	2600	2300	2100	2400	2200	2100	2300	2100	2000	2100	2000	1900 ₅
	90	2400	2200	2000	2200	2000	1900 ₅	2000	1900	1800 ₅	1800	1800 ₅	1700 ₅
240x45	40	3200	3000	2700 ₁₀	3100	2800	2600 ₁₀	2900	2700 ₅	2500 ₁₀	2700	2500 ₅	2400 ₁₅
	90	3100	2800	2600 ₁₀	2800	2600 ₅	2400 ₁₀	2500 ₅	2400 ₁₀	2300 ₁₅	2300 ₁₀	2200 ₁₅	2100 ₂₀
290x45	40	3700	3400 ₅	3200 ₁₅	3500	3300 ₅	3100 ₂₀	3400	3200 ₁₀	3000 ₂₀	3200 ₅	3000 ₁₀	2900 ₂₀
	90	3500	3300 ₅	3100 ₂₀	3200 ₅	3100 ₁₀	2900 ₂₀	3000 ₁₀	2900 ₁₅	2700 ₂₅	2800 ₂₀	2700 ₂₅	2600 ₃₀
300x45	40	3800	3500 ₅	3300 ₂₀	3600	3400 ₁₀	3200 ₂₀	3400	3200 ₁₀	3100 ₂₀	3300 ₅	3100 ₁₅	3000 ₂₅
	90	3600	3400 ₁₀	3200 ₂₀	3300 ₅	3100 ₁₅	3000 ₂₅	3100 ₁₅	3000 ₂₀	2800 ₃₀	2900 ₂₀	2800 ₂₅	2700 ₃₀
360x45	40	4400	4000 ₁₀	3800 ₂₅	4200	3900 ₁₅	3700 ₃₀	3900 ₅	3700 ₂₀	3500 ₃₀	3800 ₁₀	3600 ₂₀	3400 ₃₅
	90	4100	3900 ₁₅	3600 ₃₀	3800 ₁₀	3600 ₂₀	3500 ₃₀	3600 ₂₀	3400 ₂₅	3300 ₃₅	3400 ₃₀	3300 ₃₅	3200 ₄₀
2/90x45	40	1600	1400	1300	1400	1300	1200	1300	1200	1200	1300	1200	1100
	90	1400	1300	1200	1300	1200	1100	1200	1100	1000	1100	1000	1000
2/140x45	40	2400	2200	2000	2300	2100	1900	2100	1900	1800	2000	1800	1700
	90	2300	2100	1900	2000	1900	1800	1800	1700	1700	1700	1600	1600
2/190x45	40	3200	3000	2700	3000	2800	2600	2900	2700	2500	2700	2500	2400
	90	3000	2800	2600	2700	2600	2400	2500	2400	2300	2300	2200	2100
2/240x45	40	3800	3500	3300	3600	3400	3200	3500	3300	3100	3300	3100	3000
	90	3600	3400	3200	3300	3200	3000	3100	3000	2900	2900	2800	2700
2/290x45	40	4400	4100	3800	4200	3900	3700	4000	3800	3600	3800	3600	3500
	90	4200	3900	3700	3800	3600	3500	3600	3500	3300 ₅	3400	3300	3200 ₅
2/300x45	40	4500	4200	3900	4300	4000	3800	4100	3900	3700	3900	3700	3600
	90	4300	4000	3800	3900	3700	3600	3700	3500	3400 ₅	3500	3400	3300 ₅
2/360x45	40	5200	4800	4500	4900	4600	4300 ₅	4700	4400	4200 ₅	4500	4300	4100 ₅
	90	4900	4600	4300 ₅	4500	4300	4100 ₅	4200	4100 ₅	3900 ₁₀	4000 ₅	3900 ₅	3800 ₁₀
140x63	40	2200	1900	1800	2000	1800	1700	1900	1700	1600	1800	1600	1500
	90	2000	1800	1700	1800	1700	1600	1600	1500	1500	1500	1400	1400
190x63	40	2900	2600	2400	2700	2500	2300	2600	2400	2200	2400	2200	2100
	90	2700	2500	2300	2400	2300	2100	2200	2100	2000	2100	2000	1900

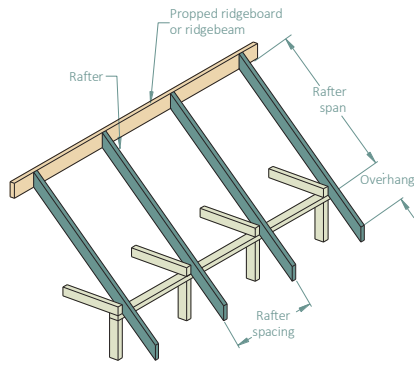
Single span lintels in lower storey walls AS 4055 classification N1 - N4 & C1

Roof load width (mm)	1500			3000			4500			6000			
floor load width (mm)	1200	2400	3600	1200	2400	3600	1200	2400	3600	1200	2400	3600	
Member size DxB (mm)	Maximum recommended Lintel span (mm) - Tile roof												
	Single span												
240x63	40	3500	3200	3000	3300	3100	2900	3200	3000	2800 ₅	3000	2800	2700 ₅
	90	3300	3100	2900	3000	2900	2700 ₅	2800	2700	2500 ₅	2600	2500 ₅	2400 ₁₀
290x63	40	4100	3700	3500 ₅	3800	3600	3400 ₅	3600	3400	3300 ₁₀	3500	3300	3200 ₁₀
	90	3800	3600	3400 ₅	3500	3300	3200 ₁₀	3300	3200 ₅	3000 ₁₅	3100 ₁₀	3000 ₁₀	2900 ₁₅
300x63	40	4200	3800	3600 ₅	3900	3700	3500 ₁₀	3700	3500	3400 ₁₀	3600	3400 ₅	3200 ₁₀
	90	3900	3700	3500 ₁₀	3600	3400 ₅	3300 ₁₀	3400	3200 ₁₀	3100 ₁₅	3200 ₁₀	3100 ₁₅	3000 ₁₅
360x63	40	4800	4400	4100 ₁₅	4500	4200 ₅	4000 ₁₅	4300	4000 ₅	3800 ₁₅	4100	3900 ₁₀	3700 ₂₀
	90	4500	4200 ₅	4000 ₁₅	4100	3900 ₁₀	3800 ₂₀	3900 ₅	3700 ₁₅	3600 ₂₀	3700 ₁₅	3500 ₂₀	3400 ₂₅

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. Minimum bearing length = 35 mm at end supports. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm.
3. Restraint value for slenderness calculations is 600 mm.
4. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single/continuous span roof rafter - with ceiling attached AS 4055 classification N1 - N4



EXAMPLE:

wind speed = N4
sheet roof - 40 kg/m²
rafter/truss spacing = 600 mm
rafter span = 5800 mm (single span)
Enter span table at single span, rafter spacing of 600 mm, and read down to a span equal to or greater than 5800 mm in the 40 kg/m² row

ADOPT:

SmartLVL 14 - 240x45

Rafter spacing (mm)		450		600		900		1200		450		600		900		1200	
Member size D x B (mm)	Roof mass (kg/m ²)	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
		Maximum recommended single span (mm)								Maximum recommended continuous span (mm)							
90x45	30	2500	250	2500	250	2400	250	2300	200	3100	250	3100	250	3100	250	3100	200
	40	2500	250	2500	250	2300	250	2100	200	3100	250	3100	250	3100	250	2900	200
	75	2400	250	2200	250	1900	200	1700	250	3100	250	3000	250	2600	200	2400	250
	90	2300	250	2100	200	1800	250	1600	250	3100	250	2800	200	2500	250	2200	250
140x45	30	4700	350	4500	350	4000	350	3600	300	5700	350	5700	350	5400	350	4900	300
	40	4500	350	4100	350	3600	350	3300	300	5700	350	5600	350	4900	350	4500	300
	75	3700	350	3400	350	3000	300	2700	300	5000	350	4600	350	4100	300	3700	300
	90	3500	350	3200	350	2800	300	2600	300	4800	350	4400	350	3800	300	3500	300
190x45	30	6300	650	5900	600	5300	600	4900	550	7700	650	7500	600	6900	600	6500	550
	40	5900	650	5500	600	4900	600	4500	550	7500	650	7000	600	6500	600	6100	550
	75	5000	600	4600	600	4000	500	3700	500	6600	600	6100	600	5500	500	5000	500
	90	4700	600	4300	550	3800	500	3500	450	6300	600	5900	550	5200	500	4700	450
240x45	30	7400	1000	7000	950	6400	900	6100	850	9300	1000	8800	950	8100	900	7600	850
	40	7000	950	6600	900	6100	850	5600	800	8800	950	8300	900	7600	850	7200	800
	75	6200	900	5700	850	5100	750	4600	700	7700	900	7300	850	6600	750	6200	700
	90	5900	900	5400	800	4800	750	4400	650	7400	900	7000	800	6400	750	6000	650
290x45	30	8300	1200	8000	1150	7400	1100	6900	1000	10500	1200	10000	1150	9300	1100	8700	1000
	40	7900	1200	7600	1150	6900	1050	6500	1000	10000	1200	9500	1150	8700	1050	8200	1000
	75	7100	1100	6600	1000	6100	1000	5600	900	8800	1100	8300	1000	7600	1000	7100	900
	90	6800	1050	6400	1000	5800	950	5300	850	8500	1050	8000	1000	7300	950	6800	850
300x45	30	8600	1300	8100	1200	7500	1150	7100	1050	10700	1300	10300	1200	9500	1150	8900	1050
	40	8100	1250	7700	1200	7100	1100	6700	1000	10200	1250	9700	1200	8900	1100	8400	1000
	75	7200	1150	6800	1100	6200	1000	5800	950	9000	1150	8500	1100	7800	1000	7300	950
	90	6900	1100	6500	1050	6000	1000	5500	900	8700	1100	8200	1050	7500	1000	7000	900
360x45	30	9600	1700	9200	1650	8500	1500	8100	1400	12000	1700	11600	1650	10700	1500	10200	1400
	40	9200	1650	8700	1550	8100	1450	7600	1300	11600	1650	11000	1550	10200	1450	9600	1300
	75	8200	1500	7700	1400	7100	1250	6600	1150	10300	1500	9700	1400	8900	1250	8400 ₅	1150
	90	7900	1450	7400	1350	6800	1200	6400	1050	9900	1450	9400	1350	8500	1200	8000 ₅	1050
90x63	30	2900	250	2900	250	2800	250	2600	250	3700	250	3700	250	3700	250	3500	250
	40	2900	250	2900	250	2600	250	2400	250	3600	250	3600	250	3500	250	3200	250
	75	2700	250	2400	250	2100	250	1900	250	3600	250	3300	250	2900	250	2600	250
	90	2500	250	2300	250	2000	250	1800	250	3400	250	3100	250	2700	250	2500	250
140x63	30	5200	600	4900	600	4400	550	4000	500	6300	600	6300	600	5900	550	5500	500
	40	4900	600	4500	550	4000	550	3700	500	6300	600	6100	550	5500	550	5000	500
	75	4100	550	3800	550	3300	500	3000	450	5600	550	5100	550	4500	500	4100	450
	90	3900	550	3600	500	3100	500	2800	450	5300	550	4800	500	4300	500	3900	450
190x63	30	6700	1000	6300	950	5800	900	5400	850	8400	1000	8000	950	7400	900	6900	850
	40	6300	950	6000	950	5400	850	5000	800	8000	950	7500	950	6900	850	6500	800
	75	5500	900	5100	850	4500	800	4100	700	7000	900	6600	850	6100	800	5600	700
	90	5200	900	4800	850	4200	750	3900	700	6800	900	6400	850	5800	750	5300	700
240x63	30	7800	1300	7400	1300	6900	1200	6500	1100	9800	1300	9300	1300	8700	1200	8200	1100
	40	7400	1300	7100	1250	6500	1150	6100	1050	9300	1300	8900	1250	8200	1150	7700	1050
	75	6600	1200	6200	1150	5600	1000	5200	1000	8300	1200	7800	1150	7200	1000	6700	1000
	90	6400	1150	6000	1100	5300	1000	4900	950	8000	1150	7500	1100	6900	1000	6400	950

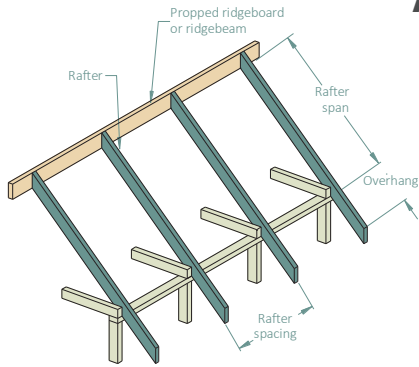
Single/continuous span roof rafter - with ceiling attached AS 4055 classification N1 - N4 (Cont'd)

Rafter spacing (mm)		450		600		900		1200		450		600		900		1200	
Member size D x B (mm)	Roof mass (kg/m ²)	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
		Maximum recommended single span (mm)								Maximum recommended continuous span (mm)							
290x63	30	8800	1750	8400	1650	7800	1550	7500	1450	11000	1750	10600	1650	9900	1550	9300	1450
	40	8400	1700	8000	1600	7400	1500	7000	1350	10500	1700	10100	1600	9300	1500	8800	1350
	75	7500	1550	7100	1450	6500	1300	6100	1200	9400	1550	8900	1450	8200	1300	7700	1200
	90	7300	1500	6800	1400	6300	1250	5900	1150	9100	1500	8600	1400	7900	1250	7400	1150
300x63	30	9000	1850	8600	1750	8000	1600	7600	1500	11300	1850	10900	1750	10100	1600	9600	1500
	40	8600	1800	8200	1700	7600	1550	7200	1450	10800	1800	10400	1700	9600	1550	9000	1450
	75	7700	1650	7300	1550	6700	1350	6300	1250	9700	1650	9200	1550	8400	1350	7900	1250
	90	7400	1600	7000	1450	6400	1300	6000	1150	9300	1600	8800	1450	8100	1300	7600	1150
360x63	30	10100	2400	9700	2250	9100	2050	8600	1900	12000	2400	12000	2250	11400	2050	10900	1900
	40	9700	2300	9300	2150	8600	1950	8200	1800	12000	2300	11700	2150	10800	1950	10300	1800
	75	8800	2100	8300	1950	7600	1700	7200	1550	11000	2100	10400	1950	9600	1700	9000	1550
	90	8400	2000	8000	1850	7300	1650	6900	1450	10600	2000	10000	1850	9200	1650	8600	1450

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a batten spacing of 900 mm
3. Maximum birdsmouth depth = 30 % of rafter depth
4. End bearing lengths = 35 mm at end supports and 42 mm at internal supports for continuous members. Subscript values Indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 42 mm at Internal supports
5. Construction loads shall not be applied to overhangs until a 190x19 (minimum) timber fascia or other fascia of equivalent stiffness is rigidly and permanently attached to the end of rafter overhangs
6. Rafter spacing up to 1200 mm
7. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

Single/continuous span roof rafter - with ceiling attached AS 4055 classification C1 - C3



Maximum Birdsmouth = 30% of rafter depth

EXAMPLE:

wind speed = C3

tile roof - 75 kg/m²

rafter/truss spacing = 600 mm

rafter span = 5800 mm (single span)

Enter span table at single span, rafter spacing of 600 mm, and read down to a span equal to or greater than 5800 mm in the 75 kg/m² row

ADOPT:

SmartLVL 14 – 290x45

Rafter spacing (mm)		450		600		900		1200		450		600		900		1200	
Member size D x B	Roof mass	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
Maximum recommended single span (mm)										Maximum recommended continuous span (mm)							
90x45	30	2500	250	2500	250	2400	250	2300	200	3100	250	3100	250	2800	250	2300	200
	40	2500	250	2500	250	2300	250	2100	200	3100	250	3100	250	2800	250	2300	200
	75	2400	250	2200	250	1900	200	1700	250	3100	250	3000	250	2600	200	2400	250
	90	2300	250	2100	200	1800	250	1600	250	3100	250	2800	200	2500	250	2200	250
140x45	30	4700	350	4500	350	3900	350	3600	300	5700	350	5400	350	4300	350	3600	300
	40	4500	350	4100	350	3600	350	3300	300	5700	350	5500	350	4400	350	3700	300
	75	3700	350	3400	350	3000	300	2700	300	5000	350	4600	350	4100	300	3700	300
	90	3500	350	3200	350	2800	300	2600	300	4800	350	4400	350	3800	300	3500	300
190x45	30	6100	650	5700	600	5100	600	4800	550	7700	650	7100	600	5800	600	4900	550
	40	5900	650	5500	600	4900	600	4500	550	7500	650	7000	600	5900	600	5000	550
	75	5000	600	4600	600	4000	500	3700	500	6600	600	6100	600	5500	500	5000 ₅	500
	90	4700	600	4300	550	3800	500	3500	450	6300	600	5900	550	5200	500	4700 ₅	450
240x45	30	7300	1000	6800	950	6100	900	5700	850	9100	1000	8500	950	7300 ₅	900	6200 ₁₀	850
	40	7000	950	6600	900	6100	850	5600	800	8800	950	8300	900	7400 ₅	850	6300 ₁₅	800
	75	6200	900	5700	850	5100	750	4600	700	7700	900	7300	850	6600 ₅	750	6200 ₂₀	700
	90	5900	900	5400	800	4800	750	4400	650	7400	900	7000	800	6400 ₅	750	6000 ₂₀	650
290x45	30	8300	1200	7800	1150	7000	1100	6500	1000	10500	1200	9800	1150	8700 ₁₅	110	7500 ₂₅	100
	40	8000	1200	7500	1150	6900	1050	6500	1000	10000	1200	9500	1150	8700 ₁₅	105	7500 ₂₅	100
	75	7000	1100	6600	1000	6100	1000	5600	900	8800	1100	8300	1000	7600 ₁₅	100	7100 ₃₀	900
	90	6800	1050	6400	1000	5800	950	5300	850	8500	1050	8000	1000	7300 ₁₅	950	6800 ₃₀	850
300x45	30	8600	1300	8000	1200	7200	1150	6700	1050	10700	1300	10000	1200	9000 ₁₅	115	7700 ₂₅	105
	40	8200	1250	7700	1200	7100	1100	6700	1000	10200	1250	9700	1200	8900 ₂₀	110	7800 ₃₀	100
	75	7200	1150	6800	1100	6200	1000	5800	950	9000	1150	8500	1100	7800 ₁₅	100	7300 ₃₅	950
	90	6900	1100	6500	1050	6000	1000	5500	900	8700	1100	8200	1050	7500 ₁₅	100	7000 ₃₅	900
360x45	30	9600	1700	9200	1650	8300	1500	7700	1400	12000	1700	11600 ₁₀	1650	10400 ₂₅	150	9200 ₄₀	140
	40	9200	1650	8700	1550	8100	1450	7600	1300	11600	1650	11000 ₁₀	1550	10200 ₃₀	145	9300 ₄₅	130
	75	8200	1500	7700	1400	7100	1250	6600	1150	10300	1500	9700 ₅	1400	8900 ₂₅	125	8400 ₄₅	115
	90	7900	1450	7400	1350	6800	1200	6400	1050	9900	1450	9400 ₅	1350	8500 ₂₅	120	8000 ₄₅	105
90x63	30	2900	250	2900	250	2800	250	2600	250	3700	250	3700	250	3400	250	2800	250
	40	2900	250	2900	250	2600	250	2400	250	3600	250	3600	250	3400	250	2800	250
	75	2700	250	2400	250	2100	250	1900	250	3600	250	3300	250	2900	250	2600	250
	90	2500	250	2300	250	2000	250	1800	250	3400	250	3100	250	2700	250	2500	250
140x63	30	5200	600	4900	600	4400	550	4000	500	6300	600	6200	600	5200	550	4400	500
	40	4900	600	4500	550	4000	550	3700	500	6300	600	6100	550	5200	550	4400	500
	75	4100	550	3800	550	3300	500	3000	450	5600	550	5100	550	4500	500	4100	450
	90	3900	550	3600	500	3100	500	2800	450	5300	550	4800	500	4300	500	3900	450
190x63	30	6600	1000	6200	950	5600	900	5200	850	8400	1000	7800	950	6900	900	5900	850
	40	6300	950	6000	950	5400	850	5000	800	8000	950	7500	950	6900	850	6000	800
	75	5500	900	5100	850	4500	800	4100	700	7000	900	6600	850	6100	800	5600	700
	90	5200	900	4800	850	4200	750	3900	700	6800	900	6400	850	5800	750	5300	700
240x63	30	7800	1300	7400	1300	6600	1200	6200	1100	9800	1300	9200	1300	8300	120	7400	110
	40	7400	1300	7100	1250	6500	1150	6100	1050	9300	1300	8900	1250	8200	115	7500 ₅	105
	75	6600	1200	6200	1150	5600	1000	5200	1000	8300	1200	7800	1150	7200	100	6700 ₅	100
	90	6400	1150	6000	1100	5300	1000	4900	950	8000	1150	7500	1100	6900	100	6400 ₅	950

Single/continuous span roof rafter - with ceiling attached AS 4055 classification C1 - C3 (cont'd)

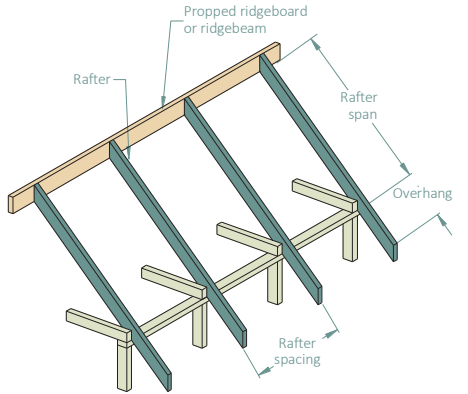
Rafter spacing (mm)		450		600		900		1200		450		600		900		1200	
Member size D x B (mm)	Roof mass (kg/m ²)	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
		Maximum recommended single span (mm)								Maximum recommended continuous span (mm)							
290x63	30	8800	1750	8400	1650	7600	1550	7100	1400	11000	1750	10600	1650	9600	1550	8900 ₁₅	1400
	40	8400	1700	8000	1600	7400	1500	7000	1350	10500	1700	10100	1600	9300	1500	8800 ₁₅	1350
	75	7500	1550	7100	1450	6500	1300	6100	1200	9400	1550	8900	1450	8200	1300	7700 ₁₀	1200
	90	7300	1500	6800	1400	6300	1250	5900	1150	9100	1500	8600	1400	7900	1250	7400 ₁₅	1150
300x63	30	9000	1850	8600	1750	7800	1600	7300	1450	11300	1850	10900	1750	9900	1600	9200 ₁₅	1450
	40	8600	1800	8200	1700	7600	1550	7200	1400	10800	1800	10400	1700	9600	1550	9000 ₁₅	1400
	75	7700	1650	7300	1550	6700	1350	6300	1250	9700	1650	9200	1550	8400	1350	7900 ₁₅	1250
	90	7400	1600	7000	1450	6400	1300	6000	1150	9300	1600	8800	1450	8100	1300	7600 ₁₅	1150
360x63	30	10100	2400	9700	2250	9000	1900	8400	1700	12000	2400	12000	2250	11300 ₁₀	1900	10500 ₂₅	1700
	40	9700	2300	9300	2150	8600	1900	8200	1650	12000	2300	11700	2150	10800 ₁₀	1900	10300 ₂₅	1650
	75	8800	2100	8300	1950	7600	1700	7200	1550	11000	2100	10400	1950	9600 ₁₀	1700	9000 ₂₅	1550
	90	8400	2000	8000	1850	7300	1650	6900	1450	10600	2000	10000	1850	9200 ₁₀	1650	8600 ₂₅	1450

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a batten spacing of 900 mm
3. Maximum birdsmouth depth = 30 % of rafter depth
4. End bearing lengths = 35 mm at end supports and 42 mm at internal supports for continuous members. Subscript values Indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 42 mm at Internal supports
5. Construction loads shall not be applied to overhangs until a 190x19 (minimum) timber fascia or other fascia of equivalent stiffness is rigidly and permanently attached to the end of rafter overhangs
6. Rafter spacing up to 1200 mm
7. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

Single/continuous span roof rafter - without ceiling attached

AS 4055 classification N1 - N4



EXAMPLE:

wind speed = N4
 sheet roof - 40 kg/m²
 rafter/truss spacing = 600 mm
 rafter span = 5800 mm (single span)
 Enter span table at single span, rafter spacing of 600 mm, and read down to a span equal to or greater than 5800 mm in the 40 kg/m² row

ADOPT:

SmartLVL 14 - 240x45

Rafter spacing (mm)		450		600		900		1200		450		600		900		1200	
Member size DxB (mm)	Roof mass (kg/m ²)	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
		Maximum recommended single span (mm)								Maximum recommended continuous span (mm)							
90x45	10	2500	250	2500	250	2400	250	2400	250	3100	250	3100	250	3100	250	3100	250
	20	2500	250	2500	250	2400	250	2400	250	3100	250	3100	250	3100	250	3100	250
	40	2500	250	2500	250	2300	250	2100	200	3100	250	3100	250	3100	250	2900	200
	60	2500	250	2300	250	2100	200	1900	250	3100	250	3100	250	2800	200	2600	250
140x45	10	4700	350	4600	350	4500	350	4100	350	5700	350	5700	350	5600	350	5300	350
	20	4700	350	4600	350	4500	350	4100	350	5700	350	5700	350	5600	350	5300	350
	40	4500	350	4100	350	3600	350	3300	300	5700	350	5600	350	4900	350	4500	300
	60	4000	350	3600	350	3200	300	2900	300	5400	350	4900	350	4400	300	4000	300
190x45	10	6400	650	6300	650	5600	650	5300	600	7700	650	7700	650	7100	650	6600	600
	20	6400	650	6300	650	5600	600	5300	550	7700	650	7700	650	7100	600	6600	550
	40	5900	650	5500	600	4900	600	4500	550	7500	650	7000	600	6500	600	6100	550
	60	5300	600	4900	600	4300	550	3900	500	6900	600	6500	600	5900	550	5400	500
240x45	10	8000	1000	7400	1000	6700	950	6300	900	9700	1000	9400	1000	8400	950	7900	900
	20	7800	1000	7500	950	6700	900	6300	850	9700	1000	9400	950	8400	900	7900	850
	40	7000	950	6600	900	6100	850	5600	800	8800	950	8300	900	7600	850	7200	800
	60	6400	900	6100	900	5400	800	5000	750	8100	900	7600	900	7000	800	6500	750
290x45	10	9200	1300	8600	1250	7700	1200	7200	1100	11600	1300	10800	1250	9700	1200	9100	1100
	20	8900	1250	8500	1200	7700	1100	7200	1050	11200	1250	10700	1200	9700	1100	9100	1050
	40	7900	1200	7600	1150	6900	1050	6500	1000	10000	1200	9500	1150	8700	1050	8200	1000
	60	7400	1150	6900	1050	6400	1000	6000	950	9200	1150	8700	1050	8000	1000	7500	950
300x45	10	9500	1350	8800	1300	7900	1250	7400	1200	11900	1350	11100	1300	10000	1250	9300	1200
	20	9100	1300	8700	1250	7900	1200	7400	1100	11400	1300	11000	1250	10000	1200	9300	1100
	40	8100	1250	7700	1200	7100	1100	6700	1000	10200	1250	9700	1200	8900	1100	8400	1000
	60	7500	1200	7100	1150	6500	1000	6100	1000	9500	1200	8900	1150	8200	1000	7700	1000
360x45	10	10800	1800	10100	1750	9100	1650	8500	1550	12000	1800	12000	1750	11500	1650	10700	1550
	20	10200	1750	9800	1700	9100	1550	8500	1450	12000	1750	12000	1700	11500	1550	10700	1450
	40	9200	1650	8700	1550	8100	1450	7600	1300	11600	1650	11000	1550	10200	1450	9600	1300
	60	8500	1550	8100	1450	7400	1300	7000	1200	10700	1550	10200	1450	9300	1300	8800 _s	1200
90x63	10	2900	250	2900	250	2800	250	2800	250	3700	250	3700	250	3700	250	3700	250
	20	2900	250	2900	250	2800	250	2800	250	3700	250	3700	250	3700	250	3700	250
	40	2900	250	2900	250	2600	250	2400	250	3600	250	3600	250	3500	250	3200	250
	60	2800	250	2600	250	2300	250	2100	250	3600	250	3500	250	3100	250	2800	250
140x63	10	5400	600	5300	600	4900	600	4500	550	6300	600	6300	600	6100	600	5700	550
	20	5400	600	5300	600	4900	550	4500	550	6300	600	6300	600	6100	550	5700	550
	40	4900	600	4500	550	4000	550	3700	500	6300	600	6100	550	5500	550	5000	500
	60	4400	550	4000	550	3600	500	3200	450	5900	550	5500	550	4800	500	4400	450
190x63	10	7200	1000	6800	1000	6100	950	5700	900	8600	1000	8500	1000	7700	950	7200	900
	20	7100	1000	6800	1000	6100	950	5700	900	8600	1000	8500	1000	7700	950	7200	900
	40	6300	950	6000	950	5400	850	5000	800	8000	950	7500	950	6900	850	6500	800
	60	5800	950	5400	900	4800	800	4400	750	7400	950	6900	900	6400	800	6000	750
240x63	10	8700	1400	8100	1350	7300	1300	6800	1200	10900	1400	10200	1350	9200	1300	8600	1200
	20	8200	1350	7900	1300	7300	1250	6800	1150	10400	1350	10000	1300	9200	1250	8600	1150
	40	7400	1300	7100	1250	6500	1150	6100	1050	9300	1300	8900	1250	8200	1150	7700	1050
	60	6900	1250	6500	1200	6000	1050	5500	1000	8600	1250	8200	1200	7500	1050	7100	1000

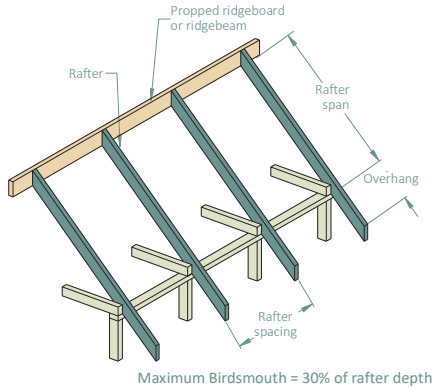
Single/continuous span roof rafter - without ceiling attached AS 4055 classification N1 - N4 (Cont'd)

Rafter spacing (mm)		450		600		900		1200		450		600		900		1200	
Member size	Roof mass	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
DxB (mm)	(kg/m ²)	Maximum recommended single span (mm)								Maximum recommended continuous span (mm)							
290x63	10	9900	1850	9300	1800	8400	1700	7800	1600	12000	1850	11800	1800	10600	1700	9900	1600
	20	9200	1800	9000	1750	8400	1600	7800	1500	11700	1800	11300	1750	10600	1600	9900	1500
	40	8400	1700	8000	1600	7400	1500	7000	1350	10500	1700	10100	1600	9300	1500	8800	1350
	60	7800	1600	7500	1550	6800	1350	6400	1250	9800	1600	9400	1550	8600	1350	8100	1250
300x63	10	10100	1950	9600	1900	8600	1800	8000	1700	12000	1950	12000	1900	10900	1800	10100	1700
	20	9400	1900	9100	1850	8600	1700	8000	1600	11900	1900	11500	1850	10800	1700	10100	1600
	40	8600	1800	8200	1700	7600	1550	7200	1450	10800	1800	10400	1700	9600	1550	9000	1450
	60	8000	1700	7600	1600	7000	1450	6600	1300	10100	1700	9600	1600	8800	1450	8300	1300
360x63	10	11200	2550	11000	2450	9900	2300	9200	2050	12000	2550	12000	2450	12000	2300	11700	2050
	20	10500	2450	10300	2350	9700	2150	9200	2000	12000	2450	12000	2350	12000	2150	11700	2000
	40	9700	2300	9300	2150	8600	1950	8200	1800	12000	2300	11700	2150	10800	1950	10300	1800
	60	9100	2150	8600	2050	8000	1800	7500	1650	11400	2150	10900	2050	10000	1800	9500	1650

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a batten spacing of 900 mm
3. Maximum birdsmouth depth = 30 % of rafter depth
4. End bearing lengths = 35 mm at end supports and 42 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 42 mm at internal supports
5. Construction loads shall not be applied to overhangs until a 190 x 19 (minimum) timber fascia or other fascia of equivalent stiffness is rigidly and permanently attached to the end of rafter overhangs
6. Rafter spacing up to 1200 mm
7. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

Single/continuous span roof rafter - without ceiling attached AS 4055 classification C1 - C3



EXAMPLE:

wind speed = C3
sheet roof - 40 kg/m²
rafter/truss spacing = 600 mm
rafter span = 5800 mm
Enter span table at single span, rafter spacing of 600 mm, and read down to a span equal to or greater than 5800 mm in the 40 kg/m² row

ADOPT:

SmartLVL 14 - 240x45

Rafter spacing (mm)		450		600		900		1200		450		600		900		1200	
Member size	Roof mass	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
DxB (mm)	(kg/m ²)	Maximum recommended single span (mm)								Maximum recommended continuous span (mm)							
90x45	10	2500	250	2500	250	2400	250	2300	250	3100	250	3100	250	2700	250	2300	250
	20	2500	250	2500	250	2400	250	2300	250	3100	250	3100	250	2800	250	2300	250
	40	2500	250	2500	250	2300	250	2100	200	3100	250	3100	250	2800	250	2300	200
	60	2500	250	2300	250	2100	200	1900	250	3100	250	3100	250	2800	200	2400	250
140x45	10	4700	350	4500	350	3900	350	3600	350	5700	350	5300	350	4200	350	3600	350
	20	4700	350	4500	350	3900	350	3600	350	5700	350	5400	350	4300	350	3600	350
	40	4500	350	4100	350	3600	350	3300	300	5700	350	5500	350	4400	350	3700	300
	60	4000	350	3600	350	3200	300	2900	300	5400	350	4900	350	4400	300	3800	300
190x45	10	6100	650	5700	650	5100	650	4800	600	7700	650	7100	650	5700	650	4800	600
	20	6100	650	5700	650	5100	600	4800	550	7700	650	7100	650	5800	600	4900	550
	40	5900	650	5500	600	4900	600	4500	550	7500	650	7000	600	5900	600	5000	550
	60	5300	600	4900	600	4300	550	3900	500	6900	600	6500	600	5900	550	5100 ₅	500
240x45	10	7300	1000	6800	1000	6100	950	5700	900	9100	1000	8500	1000	7100	950	6100 ₅	900
	20	7300	1000	6800	950	6100	900	5700	850	9100	1000	8500	950	7200	900	6100 ₁₀	850
	40	7000	950	6600	900	6100	850	5600	800	8800	950	8300	900	7400 ₅	850	6300 ₁₅	800
	60	6400	900	6100	900	5400	800	5000	750	8100	900	7600	900	7000 ₅	800	6400 ₂₀	750
290x45	10	8400	1300	7800	1250	7000	1200	6500	1100	10500	1300	9800	1250	8600 ₁₀	1200	7300 ₁₅	1100
	20	8400	1250	7800	1200	7000	1100	6500	1050	10500	1250	9800	1200	8600 ₁₀	1100	7400 ₂₀	1050
	40	8000	1200	7500	1150	6900	1050	6500	1000	10000	1200	9500	1150	8700 ₁₅	1050	7500 ₂₅	1000
	60	7400	1150	6900	1050	6400	1000	6000	950	9200	1150	8700	1050	8000 ₁₅	1000	7500 ₃₀	950
300x45	10	8600	1350	8000	1300	7200	1250	6700	1200	10800	1350	10000	1300	8800 ₁₀	1250	7500 ₂₀	1200
	20	8600	1300	8000	1250	7200	1200	6700	1100	10800	1300	10000	1250	8900 ₁₅	1200	7600 ₂₀	1100
	40	8200	1250	7700	1200	7100	1100	6700	1000	10200	1250	9700	1200	8900 ₂₀	1100	7800 ₃₀	1000
	60	7600	1200	7100	1150	6500	1000	6100	1000	9500	1200	8900	1150	8200 ₁₅	1000	7700 ₃₅	1000
360x45	10	9800	1800	9200	1750	8300	1650	7700	1450	12000	1800	11600 ₅	1750	10400 ₂₀	1650	9000 ₃₅	1450
	20	9900	1750	9200	1700	8300	1550	7700	1450	12000	1750	11600 ₅	1700	10400 ₂₅	1550	9100 ₃₅	1450
	40	9200	1650	8700	1550	8100	1450	7600	1300	11600	1650	11000 ₁₀	1550	10200 ₃₀	1450	9300 ₄₅	1300
	60	8500	1550	8100	1450	7400	1300	7000	1200	10700	1550	10200 ₅	1450	9300 ₂₅	1300	8800 ₄₅	1200
90x63	10	2900	250	2900	250	2800	250	2600	250	3700	250	3700	250	3300	250	2700	250
	20	2900	250	2900	250	2800	250	2600	250	3700	250	3700	250	3300	250	2800	250
	40	2900	250	2900	250	2600	250	2400	250	3600	250	3600	250	3400	250	2800	250
	60	2800	250	2600	250	2300	250	2100	250	3600	250	3500	250	3100	250	2800	250
140x63	10	5300	600	4900	600	4400	600	4000	550	6300	600	6200	600	5100	600	4300	550
	20	5300	600	4900	600	4400	550	4000	550	6300	600	6200	600	5100	550	4300	550
	40	4900	600	4500	550	4000	550	3700	500	6300	600	6100	550	5200	550	4400	500
	60	4400	550	4000	550	3600	500	3200	450	5900	550	5500	550	4800	500	4400	450
190x63	10	6600	1000	6200	1000	5600	950	5200	900	8400	1000	7800	1000	6800	950	5800	900
	20	6600	1000	6200	1000	5600	950	5200	900	8400	1000	7800	1000	6900	950	5800	900
	40	6300	950	6000	950	5400	850	5000	800	8000	950	7500	950	6900	850	6000	800
	60	5800	950	5400	900	4800	800	4400	750	7400	950	6900	900	6400	800	6000	750
240x63	10	7900	1400	7300	1350	6600	1300	6200	1200	9900	1400	9200	1350	8300	1300	7300	1200
	20	7900	1350	7300	1300	6600	1250	6200	1150	9900	1350	9200	1300	8300	1250	7300	1150
	40	7400	1300	7100	1250	6500	1150	6100	1050	9300	1300	8900	1250	8200	1150	7500 ₅	1050
	60	6900	1250	6500	1200	6000	1050	5500	1000	8600	1250	8200	1200	7500	1050	7100 ₅	1000

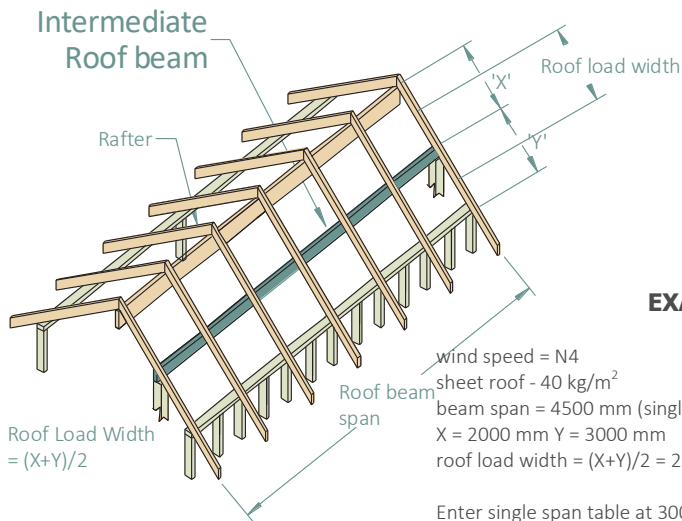
Single/continuous span roof rafter - without ceiling attached AS 4055 classification C1 - C3 (Cont'd)

Rafter spacing (mm)		450		600		900		1200		450		600		900		1200	
Member size DxB (mm)	Roof mass (kg/m ²)	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
		Maximum recommended single span (mm)								Maximum recommended continuous span (mm)							
290x63	10	9100	1850	8500	1800	7600	1650	7100	1450	11500	1850	10600	1800	9600	1650	8700 ₅	1450
	20	9100	1800	8500	1750	7600	1600	7100	1400	11500	1800	10600	1750	9600	1600	8800 ₁₀	1400
	40	8400	1700	8000	1600	7400	1500	7000	1350	10500	1700	10100	1600	9300	1500	8800 ₁₅	1350
	60	7800	1600	7500	1550	6800	1350	6400	1250	9800	1600	9400	1550	8600	1350	8100 ₁₅	1250
300x63	10	9300	1950	8700	1900	7800	1700	7300	1500	11800	1950	10900	1900	9900	1700	9000 ₁₀	1500
	20	9300	1900	8700	1850	7800	1700	7300	1450	11800	1900	10900	1850	9900	1700	9100 ₁₀	1450
	40	8600	1800	8200	1700	7600	1550	7200	1400	10800	1800	10400	1700	9600	1550	9000 ₁₅	1400
	60	8000	1700	7600	1600	7000	1450	6600	1300	10100	1700	9600	1600	8800	1450	8300 ₁₅	1300
360x63	10	10700	2550	10000	2400	9000	2000	8400	1750	12000	2550	12000	2400	11300 ₅	2000	10500 ₂₀	1750
	20	10600	2450	10000	2350	9000	1950	8400	1700	12000	2450	12000	2350	11300 ₁₀	1950	10500 ₂₀	1700
	40	9700	2300	9300	2150	8600	1900	8200	1650	12000	2300	11700	2150	10800 ₁₀	1900	10300 ₂₅	1650
	60	9100	2150	8600	2050	8000	1800	7500	1600	11400	2150	10900	2050	10000 ₁₀	1800	9500 ₂₅	1600

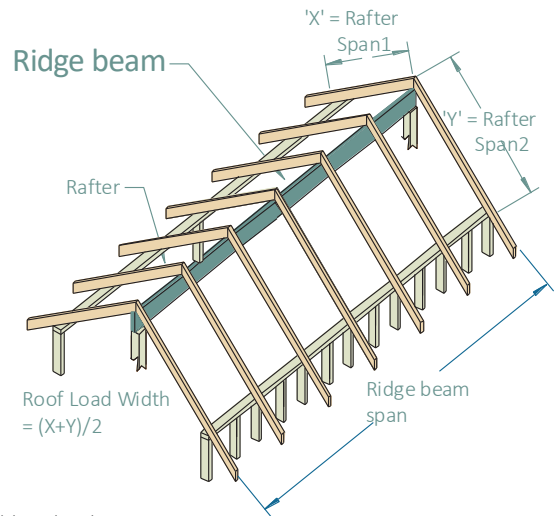
NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a batten spacing of 900 mm
3. Maximum birdsmouth depth = 30 % of rafter depth
4. End bearing lengths = 35 mm at end supports and 42 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 35 mm at end supports and 42 mm at internal supports
5. Construction loads shall not be applied to overhangs until a 190 x 19 (minimum) timber fascia or other fascia of equivalent stiffness is rigidly and permanently attached to the end of rafter overhangs
6. Max rafter spacing up to 1200 mm
7. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span ridge/intermediate roof beam AS 4055 classification N1 - N4



EXAMPLE:



wind speed = N4
sheet roof - 40 kg/m²
beam span = 4500 mm (single span)
X = 2000 mm Y = 3000 mm
roof load width = $(X+Y)/2 = 2500$ mm

Enter single span table at 3000 roof load width with column and read down to span equal to or greater than 4500 mm in the 40 kg/m² row

ADOPT:

SmartLVL 14 - 2/240x45

Roof load width (mm)		1500		3000		4500		6000		7500	
Member size DxB (mm)	Roof mass (kg/m ²)	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
Maximum recommended Ridge or Intermediate roof beam span - Single span (mm)											
2/90x45	40	2400	900	1900	900	1600	800	1400	700	1300	650
	90	1900	900	1500	750	1300	650	1100	550	1000	500
2/140x45	40	3800	1450	3000	1400	2500	1250	2300	1150	2100	1050
	90	2900	1450	2300	1150	2000	1000	1800	900	1700	850
2/190x45	40	5000	1950	4000	1850	3400	1700	3100	1550	2800	1400
	90	4000	1950	3200	1600	2700	1350	2500	1250	2300	1150
2/240x45	40	6200	2450	5000	2300	4300	2100	3900	1900	3600	1800
	90	5000	2400	4000	2000	3500	1750	3100	1550	2900	1450
2/290x45	40	7100	2900	6000	2700	5200	2400	4700	2200	4300	2050
	90	6000	2800	4800	2350	4200	2100	3800	1900	3500	1750
2/300x45	40	7300	3000	6200	2800	5400	2500	4900	2300	4400	2150
	90	6200	2850	5000	2400	4300	2150	3900	1950	3600	1800
2/360x45	40	8300	3550	7100	3200	6300	2850	5800	2650	5300	2450 ₅
	90	7000	3250	6000	2750	5200	2500	4700	2300	4300	2150 ₁₀
90x63	40	2200	800	1700	750	1400	700	1300	650	1200	600
	90	1700	800	1300	650	1100	550	1000	500	NS	NS
140x63	40	3400	1300	2600	1250	2300	1150	2000	1000	1800	900
	90	2600	1300	2100	1050	1800	900	1600	800	1500	750
190x63	40	4500	1700	3600	1700	3100	1550	2700	1350	2500	1250
	90	3600	1700	2800	1400	2400	1200	2200	1100	2000	1000
240x63	40	5700	2150	4500	2100	3900	1900	3500	1750	3200	1600
	90	4500	2150	3600	1800	3100	1550	2800	1400	2500	1250
290x63	40	6600	2600	5400	2450	4700	2200	4200	2000	3800	1900 ₁₀
	90	5400	2550	4300	2150	3700	1850	3400	1700	3100	1550 ₁₅
300x63	40	6800	2700	5600	2550	4800	2250	4300	2100	4000	1950 ₁₅
	90	5600	2650	4400	2200	3900	1950	3500	1750	3200	1600 ₁₅
360x63	40	7700	3200	6500	2950	5800	2600	5200	2400 ₁₅	4700	2250 ₃₅
	90	6500	3000	5300	2550	4600	2250	4200	2100 ₂₀	3800	1900 ₄₀

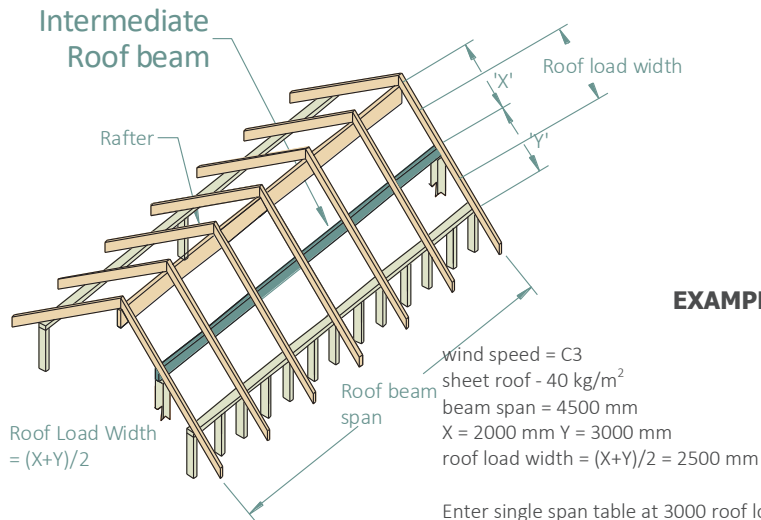
Continuous span ridge/intermediate roof beam AS 4055 classification N1 - N4

Roof load width (mm)		1500		3000		4500		6000		7500	
Member size DxB (mm)	Roof mass (kg/m ²)	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
		Maximum Ridge or Intermediate roof beam - Continuous span (mm)									
2/90x45	40	3300	900	2600	900	2200	900	2000	800	1800	750
	90	2600	900	2000	900	1700	800	1600	700	1400	650
2/140x45	40	5100	1450	4000	1400	3500	1350	3100	1250	2800	1150
	90	4000	1450	3200	1300	2700	1200	2500	1100	2300	1000
2/190x45	40	6600	1950	5400	1850	4700	1750	4200	1600	3800	1500
	90	5400	1950	4300	1700	3700	1500	3400	1400	3100	1300
2/240x45	40	7800	2450	6600	2300	5900	2100	5300	1900	4800	1800
	90	6600	2400	5400	2000	4700	1800	4200	1650	3900	1550
2/290x45	40	8900	2900	7600	2700	6800	2400	6300	2200	5800	2050
	90	7600	2800	6400	2350	5700	2100	5100	1950	4700 ₅	1800 ₅
2/300x45	40	9100	3000	7800	2800	7000	2500	6400	2300	6000 ₅	2150 ₅
	90	7700	2850	6600	2400	5900	2150	5300	2000	4900 ₅	1850 ₅
2/360x45	40	10400	3550	8900	3200	8000	2850	7300	2650	6900	2450
	90	8800	3250	7500	2750	6700	2500	6300	2300	5900 ₃₀	2150 ₃₀
90x63	40	3000	800	2300	750	2000	750	1700	700	1600	650
	90	2300	800	1800	750	1500	700	1400	600	1300	550
140x63	40	4600	1300	3600	1250	3100	1200	2700	1100	2400	1000
	90	3600	1300	2800	1200	2400	1100	2200	1000	2000	900
190x63	40	6100	1700	4900	1700	4200	1600	3600	1450	3200	1350
	90	4900	1700	3800	1550	3300	1350	3000	1250	2700	1200
240x63	40	7200	2150	6100	2100	5200	1900	4500	1750	4000	1650
	90	6100	2150	4800	1850	4200	1650	3800	1500	3500 ₅	1450 ₅
290x63	40	8300	2600	7000	2450	6200	2200	5300	2000	4700 ₁₀	1900 ₁₀
	90	7000	2550	5800	2150	5100	1900	4600	1750	4200 ₃₀	1650 ₃₀
300x63	40	8500	2700	7200	2550	6400	2250	5500 ₅	2100 ₅	4900 ₁₅	1950 ₁₅
	90	7100	2650	6000	2200	5200	1950	4700 ₅	1800 ₅	4300 ₃₀	1700 ₃₀
360x63	40	9700	3200	8200	2950	7300 ₅	2600 ₅	6500 ₂₅	2400 ₂₅	5800 ₄₀	2250 ₄₀
	90	8200	3000	6900	2550	6200	2250	5700 ₄₅	2100 ₄₅	5100 ₇₀	1950 ₇₀

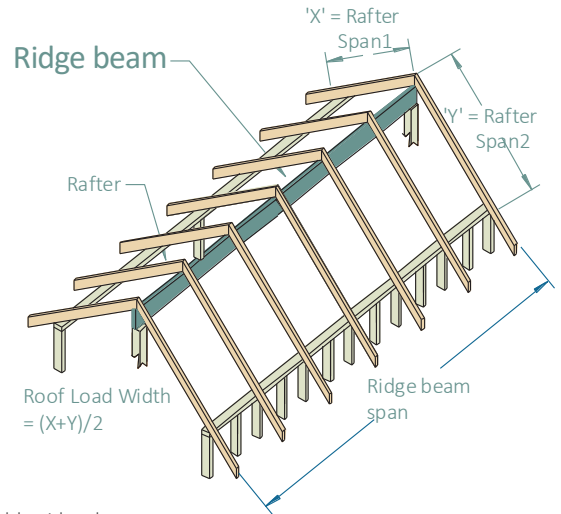
NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. End bearing lengths = 70 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 70 mm at end supports and 70 mm at internal supports
3. Max rafter spacing up to 1200 mm
4. Not all sizes of SmartLVL in this table are stocked in each state. check with your supplier before ordering.

Single span ridge/intermediate roof beam AS 4055 classification C1 - C3



EXAMPLE:



Enter single span table at 3000 roof load width with column
And read down to span equal to or greater than 4500 mm in 40 kg/
m² row

ADOPT:

SmartLVL 14 -2/240x45

Roof load width (mm)		1500		3000		4500		6000		7500	
Member size DxB (mm)	Roof mass (kg/m ²)	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
Maximum recommended ridge/intermediate roof beam - Single span (mm)											
2/90x45	40	2400	900	1900	900	1600	800	1400	700	1300	650
	90	1900	900	1500	750	1300	650	1100	550	1000	500
2/140x45	40	3800	1450	3000	1400	2500	1250	2300	1150	2100	1000
	90	2900	1450	2300	1150	2000	1000	1800	900	1700	850
2/190x45	40	5000	1950	4000	1850	3400	1700	3100	1500	2800	1350
	90	4000	1950	3200	1600	2700	1350	2500	1250	2300	1150
2/240x45	40	6200	2450	5000	2300	4300	2100	3900	1850	3600	1700 ₁₀
	90	5000	2400	4000	2000	3500	1750	3100	1550	2900	1450 ₅
2/290x45	40	7100	2900	6000	2700	5200	2450	4700	2200 ₁₀	4200	2000 ₃₀
	90	6000	2800	4800	2350	4200	2100	3800	1900 ₁₀	3500	1750 ₂₅
2/300x45	40	7300	3000	6200	2800	5400	2500	4900	2300 ₁₅	4400	2050 ₃₀
	90	6200	2850	5000	2400	4300	2150	3900	1950 ₁₅	3600	1800 ₃₀
2/360x45	40	8300	3550	7100	3200	6300	2850 ₁₀	5800	2650 ₃₅	5200 ₇₀	2450 ₇₀
	90	7000	3250	6000	2750	5200	2500 ₁₀	4700	2300 ₃₅	4300 ₇₀	2150 ₇₀
90x63	40	2200	800	1700	750	1400	700	1200	600	1100	550
	90	1700	800	1300	650	1100	550	1000	500	NS	NS
140x63	40	3400	1300	2600	1250	2200	1100	1900	950	1700	850
	90	2600	1300	2100	1050	1800	900	1600	800	1500	750
190x63	40	4500	1700	3500	1700	2900	1450	2500	1250	2200	1100
	90	3600	1700	2800	1400	2400	1200	2200	1100	2000	1000 ₅
240x63	40	5700	2150	4400	2100	3600	1800	3100	1550 ₁₀	2800	1400 ₂₅
	90	4500	2150	3600	1800	3100	1550	2800	1400 ₁₅	2500	1250 ₃₀
290x63	40	6600	2600	5200	2450	4300	2150 ₁₅	3700	1850 ₃₀	3300 ₆₀	1650 ₆₀
	90	5400	2550	4300	2150	3700	1850 ₁₅	3400	1700 ₄₀	3100 ₇₅	1550 ₇₅
300x63	40	6800	2700	5400	2550	4400	2200 ₁₅	3800	1900 ₃₅	3400 ₆₅	1700 ₆₅
	90	5600	2650	4400	2200	3900	1950 ₂₀	3500	1750 ₅₀	3200 ₈₀	1600 ₈₀
360x63	40	7700	3200	6400	2950 ₅	5200 ₄₀	2600 ₄₀	4500 ₇₅	2250 ₇₅	4100 ₉₅	2050 ₉₅
	90	6500	3000	5300	2550 ₅	4600 ₄₀	2250 ₄₀	4200 ₈₅	2100 ₈₅	3800 ₁₁₀	1900 ₁₁₀

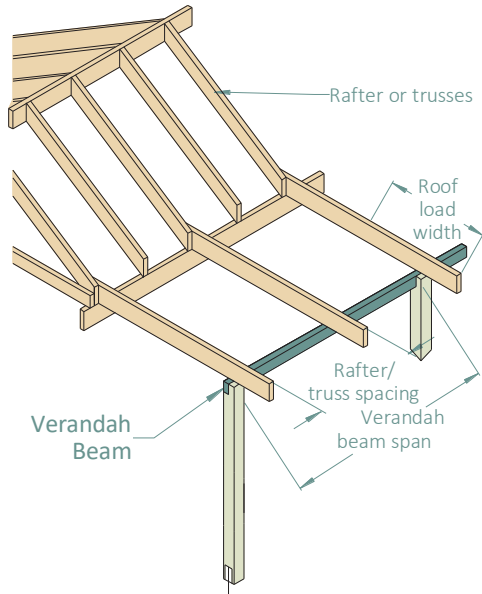
Continuous span ridge/intermediate roof beam AS 4055 classification C1 - C3

Roof Load width (mm)		1500		3000		4500		6000		7500	
Member size DxB (mm)	Roof mass (kg/m ²)	span	O/H	span	O/H	span	O/H	span	O/H	span	O/H
		Maximum recommended ridge/Intermediate roof beam - Continuous span (mm)									
2/90x45	40	3100	850	2100	750	1700	600	1500	550	1400	500
	90	2500	850	2000	800	1700	650	1500	550	1400	500
2/130x45	40	4500	1300	3100	1100	2500	900	2200	800	2000	700
	90	3600	1300	2900	1150	2500	900	2200	800	2000	700
2/150x45	40	5200	1500	3600	1250	3000	1050	2600	900	2300	800
	90	4200	1500	3300	1300	2900	1050	2600	900	2300	850
2/170x45	40	5900	1700	4100	1450	3400	1150	2900	1000	2600	900
	90	4700	1700	3700	1500	3200	1200	2900	1050	2600	950
2/200x45	40	6700	1950	4800	1700	3900	1400	3400	1200	3100	1050
	90	5500	1950	4400	1700	3800	1400	3400	1250	3100	1100
2/240x45	40	7600	2350	5800	2000	4700	1650	4100	1450	3700 ₅	1300
	90	6400	2350	5300	1950	4600	1700	4100 ₅	1500	3700 ₂₀	1300
2/300x45	40	8900	2950	7400	2550	5900	2050	5100 ₁₅	1800	4600 ₃₀	1600
	90	7500	2750	6400	2350	5700 ₁₀	2100	5200 ₃₅	1850	4700 ₆₅	1650
2/360x45	40	10100	3500	8700	3050	7100 ₁₅	2500	6200 ₃₅	2150	5500 ₆₅	1900
	90	8600	3200	7300	2700	6600 ₂₅	2400	6100 ₇₅	2200	5600 ₉₅	2000
2/400x45	40	10800	3900	9300	3350	7900 ₃₀	2750	6900 ₆₅	2400	6200 ₈₅	2150
	90	9300	3450	7900	2900	7200 ₄₀	2600	6600 ₈₅	2400	6200 ₁₁₅	2200
90x63	40	2400	750	1700	650	1400	500	1200	450	1000	400
	90	2200	750	1700	650	1400	550	1200	450	1100	400
130x63	40	3500	1150	2400	900	2000	750	1700	650	1500	600
	90	3200	1150	2500	950	2100	750	1800	650	1600	600
150x63	40	4100	1350	2800	1050	2300	850	2000	750	1800	650
	90	3700	1350	2900	1100	2400	900	2000	800	1800	700
170x63	40	4700	1500	3200	1200	2600	1000	2300	850	2000	750
	90	4200	1500	3300	1250	2700	1000	2300	900	2100	800
200x63	40	5700	1750	3800	1400	3100	1150	2700	1000	2400	900
	90	4900	1750	3900	1450	3200	1200	2700	1050	2400 ₁₅	900

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. End bearing lengths = 70 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 75 mm at end supports and 70 mm at internal supports.
3. rafter spacing up to 1200 mm
4. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering

Single span Verandah beam AS 4055 classification C1 - C3



EXAMPLE:

wind speed = C3
 sheet roof - 40 kg/m²
 rafter/truss spacing = 600 mm
 verandah span = 3500 mm
 roof load width = 3900 mm
 Enter span table at 4500 roof load width column, rafter spacing of 600 mm, and read down to a span equal to or greater than 3500 mm in the 40 kg/m² row

ADOPT:

SmartLVL 14 - 290x45

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Verandah beam span - Single span									
90x45	10	1900	1900	1500	1300	1300	NS	1200	NS	1000	NS
	20	1900	1900	1500	1300	1300	NS	1200	NS	1000	NS
	40	1700	1700	1400	1200	1200	NS	1000	NS	NS	NS
	60	1500	1400	1200	1000	1000	NS	NS	NS	NS	NS
	90	1400	1200	1000	NS	NS	NS	NS	NS	NS	NS
140x45	10	3000	3000	2400	2400	2100	2000	1800	1500	1600	1200
	20	3000	3000	2400	2400	2100	2000	1800	1500	1600	1200
	40	2700	2800	2100	2100	1800	1800	1600	1500	1500	1300
	60	2400	2500	1900	1900	1600	1500	1400	1300	1300	1100
	90	2100	2100	1600	1600	1400	1300	1300	1100	1200	NS
190x45	10	4100	4100	3300	3200	2800	2700	2500	2400	2200	2100
	20	4100	4100	3300	3200	2800	2800	2500	2400	2300	2100
	40	3700	3700	2900	2900	2500	2500	2200	2200	2000	2000
	60	3300	3200	2600	2600	2200	2200	2000	1900	1800	1800
	90	2900	2900	2300	2200	1900	1900	1700	1700	1600	1500
240x45	10	5200	5200	4100	4100	3600	3400	3100	2900	2700	2700
	20	5100	5200	4100	4100	3600	3400	3100	3000	2800	2700
	40	4500	4500	3700	3600	3100	3100	2800	2800	2500	2600 ₅
	60	4100	4100	3300	3200	2800	2800	2500	2500	2300	2300
	90	3600	3600	2900	2900	2500	2500	2200	2200	2100	2000
290x45	10	6200	6200	5000	5000	4200	4200	3700	3500	3300	3100
	20	5900	5900	4900	4900	4300	4200	3800	3600	3400	3200
	40	5100	5200	4300	4300	3800	3800	3400	3300	3100	3100 ₁₀
	60	4700	4700	3900	3900	3400	3400	3000	3000	2800	2800 ₁₀
	90	4300	4300	3500	3400	3000	3000	2700	2700 ₅	2500 ₅	2500 ₂₀
300x45	10	6300	6400	5200	5200	4400	4300	3800	3600	3400	3200
	20	6000	6000	5100	5100	4400	4400	3900	3700	3500 ₅	3300
	40	5300	5300	4400	4400	3900	3900	3500	3500	3200	3200 ₁₀
	60	4800	4800	4000	4000	3500	3500	3100	3100	2900 ₁₀	2900 ₂₅
	90	4400	4400	3600	3600	3100	3100	2800	2800 ₁₅	2600 ₅	2600 ₂₀
360x45	10	7300	7300	6100	6100	5200	5200	4500	4500 ₅	4000 ₅	3900 ₅
	20	6800	6900	5800	5700	5100	5100	4600	4600 ₅	4100 ₁₀	4000 ₁₀
	40	6000	6000	5100	5000	4500	4500	4100 ₁₀	4100 ₂₀	3900 ₂₀	3800 ₁₅
	60	5500	5500	4600	4600	4200	4200	3800 ₅	3700	3500	3400 ₁₅
	90	5000	5000	4200	4200	3800	3700	3400	3300 ₅	3100 ₁₅	3100 ₃₅

Single span Verandah beam AS 4055 classification N1 - N4 (Cont'd)

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Verandah beam span - Single span (mm)									
90x63	10	2100	2200	1700	1600	1500	1200	1400	NS	1300	NS
	20	2100	2200	1700	1600	1500	1200	1400	NS	1200	NS
	40	1900	2000	1500	1400	1300	1100	1100	NS	1000	NS
	60	1700	1700	1400	1100	1200	NS	1000	NS	NS	NS
	90	1500	1400	1200	1000	1000	NS	NS	NS	NS	NS
140x63	10	3400	3300	2700	2700	2300	2400	2100	2100	1900	1700
	20	3400	3300	2700	2700	2300	2400	2100	2100	1900	1700
	40	3000	3000	2400	2400	2000	2000	1800	1800	1600	1600
	60	2700	2700	2100	2100	1800	1800	1600	1500	1500	1300
	90	2400	2400	1800	1800	1600	1500	1400	1300	1300	1100
190x63	10	4600	4600	3600	3600	3200	3100	2900	2800	2600	2600
	20	4600	4600	3600	3600	3200	3100	2900	2900	2600	2600
	40	4100	4100	3200	3200	2800	2800	2500	2500	2200	2200
	60	3600	3600	2900	2900	2500	2500	2200	2200	2000	2000
	90	3200	3200	2500	2600	2200	2200	2000	1900	1800	1800
240x63	10	5800	5800	4600	4600	4000	4000	3600	3500	3300	3100
	20	5500	5500	4600	4600	4000	4000	3600	3600	3300	3200
	40	4800	4800	4000	4000	3500	3500	3100	3100	2800	2900
	60	4400	4400	3600	3600	3100	3100	2800	2800	2600	2600
	90	4000	4000	3200	3200	2800	2800	2500	2500	2300	2300
290x63	10	6800	6700	5600	5600	4900	4900	4400	4300	3900	3800
	20	6300	6300	5300	5300	4700	4700	4300	4300	4000	3800
	40	5500	5500	4700	4600	4200	4200	3800	3800	3500	3400
	60	5100	5100	4300	4300	3800	3800	3400	3400	3100	3100
	90	4700	4600	3900	3900	3400	3300	3000	3000	2800	2800
300x63	10	6900	6900	5800	5800	5100	5100	4500	4500	4000	3900
	20	6400	6500	5400	5400	4800	4800	4400	4400	4100	4000
	40	5700	5700	4800	4800	4300	4300	3900	3900	3600	3500
	60	5200	5200	4400	4400	3900	3900	3500	3500	3200	3200
	90	4800	4800	4000	4000	3500	3400	3100	3100	2900	2900 ₅
360x63	10	7900	8000	6700	6700	6000	6000	5300	5300	4800	4800 ₁₀
	20	7300	7300	6200	6200	5500	5500	5100	5100	4700 ₅	4700
	40	6500	6500	5500	5500	4900	4900	4500	4500	4200	4200 ₁₀
	60	6000	5900	5000	5000	4500	4500	4200	4200	3900	3800
	90	5500	5400	4600	4600	4100	4100	3800	3700	3500	3400

Continuous span Verandah beam AS 4055 classification N1 - N3

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Verandah beam span - Continuous span (mm)									
90x45	10	2500	2600	1700	1700	1400	1000	1300	NS	NS	NS
	20	2500	2600	1700	1700	1400	1200	1300	NS	NS	NS
	40	2400	2400	1800	1800	1500	1200	1300	NS	1000	NS
	60	2100	2000	1600	1500	1400	1200	1200	NS	NS	NS
	90	1800	1800	1400	1200	1200	NS	1000	NS	NS	NS
140x45	10	3800	3700	2600	2700	2200	2000	1800	1600	1600	1400
	20	3800	3700	2700	2700	2200	2100	1900	1600	1600	1400
	40	3700	3700	2800	2800	2200	2200	2000	1800	1600 ₅	1500
	60	3300	3200	2600	2600	2200	2100	1800 ₅	1600	1600 ₁₀	1300
	90	2900	2900	2200	2200	1900	1800	1600	1600	1600 ₂₀	1200 ₅
190x45	10	5000	5000	3500	3400	2900	2900	2500 ₁₀	2600 ₁₅	2200 ₂₀	1700
	20	5000	5100	3600	3500	2900	2900	2500 ₁₅	2600 ₂₀	2200 ₃₀	2100 ₂₀
	40	4700	4700	3700	3600	3000 ₁₀	3000 ₁₀	2600 ₂₅	2700 ₂₅	2300 ₄₀	2100 ₃₀
	60	4300	4300	3500	3400	2900 ₁₅	2900 ₁₅	2500 ₃₀	2600 ₃₅	2200 ₄₅	1700 ₂₀
	90	3900	3900	3100	3000	2600 ₂₀	2600 ₂₀	2300 ₄₀	2200 ₃₅	2100 ₅₀	1600 ₂₅

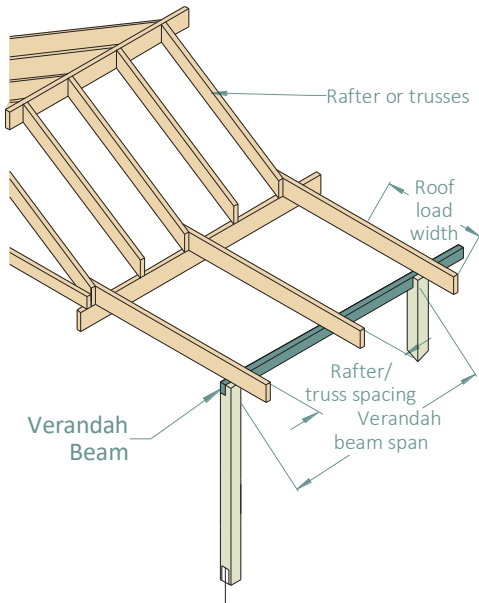
Continuous span Verandah beam AS 4055 classification N1 - N3

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Verandah beam span - Continuous span (mm)									
240x45	10	6200	6100	4400	4400	3600 ₁₅	3500 ₁₅	3100 ₃₀	3100 ₃₀	2800 ₄₅	2800 ₄₅
	20	6300	6200	4400	4400	3600 ₂₀	3500 ₂₀	3200 ₄₀	3100 ₃₅	2800 ₅₀	2800 ₅₅
	40	5600	5600	4600 ₁₀	4500 ₁₀	3800 ₃₅	3700 ₃₀	3300 ₅₅	3200 ₄₅	2900 ₈₀	2900 ₈₀
	60	5100	5100	4300 ₁₅	4300 ₁₅	3600 ₄₀	3500 ₄₀	3100 ₅₅	3100 ₅₅	2800 ₉₀	2800 ₉₀
	90	4700	4600	3900 ₁₅	3800 ₁₅	3300 ₄₅	3300 ₄₀	2900 ₇₀	2900 ₇₀	2600 ₉₅	2700 ₁₀₀
290x45	10	7400	7400	5200 ₁₀	5200 ₁₀	4300 ₃₀	4300 ₃₀	3700 ₅₀	3600 ₅₀	3300 ₈₀	3200 ₇₅
	20	7200	7300	5300 ₁₅	5300 ₁₅	4300 ₄₀	4300 ₄₀	3800 ₆₀	3700 ₆₀	3400 ₉₀	3200 ₈₅
	40	6400	6400	5400 ₂₅	5400 ₂₅	4500 ₅₅	4400 ₅₅	3900 ₉₀	3800 ₉₀	3500 ₁₁₀	3300 ₁₀₀
	60	5900	5900	4900 ₃₀	4900 ₂₅	4300 ₆₀	4300 ₆₅	3700 ₉₅	3600 ₉₅	3300 ₁₁₅	3200 ₁₁₅
	90	5400	5400	4500 ₃₀	4500 ₃₀	4000 ₈₀	4000 ₇₅	3500 ₁₀₅	3400 ₁₀₀	3100 ₁₂₅	3100 ₁₂₅
300x45	10	7600	7600	5400 ₁₅	5400 ₁₅	4400 ₃₅	4400 ₃₅	3800 ₅₅	3800 ₅₅	3500 ₉₀	3200 ₇₅
	20	7300	7500	5500 ₂₀	5400 ₂₀	4500 ₄₅	4400 ₄₅	3900 ₇₀	3800 ₇₀	3500 ₉₅	3300 ₈₅
	40	6500	6600	5500 ₃₀	5500 ₃₀	4600 ₆₀	4600 ₆₀	4000 ₉₅	4000 ₉₅	3600 ₁₁₅	3400 ₁₁₀
	60	6000	6000	5100 ₃₀	5100 ₃₀	4400 ₆₅	4400 ₇₀	3800 ₁₀₀	3800 ₁₀₀	3400 ₁₂₀	3300 ₁₁₅
	90	5500	5500	4600 ₃₀	4600 ₃₀	4100 ₈₅	4100 ₈₅	3600 ₁₁₀	3500 ₁₁₀	3200 ₁₃₅	3200 ₁₃₀
360x45	10	8500	9000	6400 ₃₀	6400 ₃₀	5200 ₅₅	5200 ₅₅	4500 ₉₀	4500 ₉₀	4100 ₁₁₅	4100 ₁₁₅
	20	8100	8600	6500 ₃₅	6500 ₄₀	5300 ₇₀	5300 ₇₀	4600 ₁₀₀	4600 ₁₀₅	4100 ₁₂₅	4100 ₁₂₅
	40	7300	7500	6300 ₄₅	6300 ₄₅	5500 ₉₅	5500 ₁₀₀	4800 ₁₂₅	4700 ₁₂₅	4200 ₁₅₀	4200 ₁₅₀
	60	6800	6900	5800 ₄₅	5800 ₄₅	5200 ₁₀₀	5200 ₁₀₀	4500 ₁₃₀	4500 ₁₃₀	4000 ₁₅₅	4000 ₁₅₅
	90	6300	6300	5300 ₄₅	5300 ₅₀	4800 ₁₁₀	4700 ₁₁₀	4300 ₁₄₅	4300 ₁₄₅	3800 ₁₇₀	3400 ₁₅₀
140x63	10	4400	4400	3100	3100	2600	2600	2200	2100	2000	1900
	20	4500	4500	3200	3100	2600	2700	2200	2200	2000	1900
	40	4100	4100	3200	3100	2700	2700	2300	2300	2100	2000
	60	3600	3600	2900	2800	2500	2500	2200	2100	2000	1900
	90	3200	3100	2500	2500	2200	2100	1900	1900	1800	1600
190x63	10	5900	5800	4200	4200	3400	3300	2900	2900	2700 ₅	2700 ₅
	20	5800	5800	4200	4200	3500	3400	3000	3000	2700 ₁₀	2700 ₁₅
	40	5100	5100	4300	4200	3600	3500	3100 ₁₀	3100 ₁₀	2700 ₂₀	2800 ₂₅
	60	4700	4600	3900	3800	3300	3300	2900 ₁₅	2900 ₁₅	2600 ₂₅	2700 ₂₅
	90	4200	4200	3400	3400	3000	3000	2700 ₁₅	2700 ₁₅	2400 ₃₀	2400 ₃₀
240x63	10	7100	7300	5200	5200	4200	4200	3700 ₁₅	3600 ₁₀	3300 ₂₅	3200 ₂₅
	20	6800	6900	5300	5300	4300 ₅	4300 ₅	3700 ₂₀	3700 ₂₀	3400 ₃₅	3300 ₃₀
	40	6000	6000	5100	5100	4400 ₁₅	4400 ₁₅	3800 ₃₀	3800 ₃₀	3400 ₄₅	3300 ₄₅
	60	5500	5500	4600	4600	4200 ₂₀	4200 ₂₀	3700 ₃₅	3600 ₃₅	3300 ₅₀	3200 ₄₅
	90	5000	5100	4200	4200	3700 ₂₀	3700 ₂₀	3400 ₄₀	3300 ₄₀	3100 ₆₀	3100 ₅₅
290x63	10	7900	8400	6200	6100	5100 ₁₅	5100 ₁₅	4400 ₃₀	4400 ₃₀	3900 ₄₅	3900 ₄₅
	20	7500	7900	6300 ₅	6200 ₅	5100 ₂₀	5200 ₂₀	4500 ₄₀	4400 ₄₀	4000 ₅₅	4000 ₅₅
	40	6800	6900	5800 ₅	5800 ₅	5200 ₃₀	5200 ₃₅	4600 ₅₅	4500 ₅₅	4100 ₈₀	4100 ₈₅
	60	6300	6300	5300 ₅	5300 ₅	4800 ₃₀	4800 ₃₀	4400 ₆₀	4400 ₆₀	3900 ₉₀	3900 ₈₅
	90	5800	5800	4900 ₅	4900 ₅	4400 ₃₅	4400 ₃₅	4100 ₇₀	4000 ₇₀	3700 ₉₅	3600 ₉₅
300x63	10	8100	8700	6400	6400	5200 ₂₀	5200 ₂₀	4500 ₃₅	4500 ₃₅	4100 ₅₀	4100 ₅₀
	20	7700	8100	6500 ₅	6500 ₅	5300 ₂₅	5300 ₂₅	4600 ₄₀	4500 ₄₀	4100 ₆₀	4100 ₆₀
	40	6900	7100	6000 ₅	6000 ₅	5300 ₃₅	5300 ₃₅	4700 ₅₅	4700 ₅₅	4200 ₈₅	4200 ₈₅
	60	6400	6500	5500 ₅	5500 ₅	4900 ₃₅	4900 ₃₅	4500 ₆₅	4500 ₆₅	4000 ₉₅	4000 ₉₀
	90	6000	6000	5000 ₁₀	5000 ₁₀	4500 ₄₀	4500 ₄₀	4200 ₈₀	4100 ₈₀	3800 ₁₀₀	3700 ₁₀₀
360x63	10	9000	9900	7600 ₁₅	7600 ₁₅	6200 ₃₅	6100 ₃₅	5400 ₅₅	5400 ₅₅	4800 ₈₅	4800 ₈₅
	20	8500	9100	7400 ₂₀	7700 ₂₀	6300 ₄₅	6300 ₄₅	5400 ₇₀	5400 ₇₀	4900 ₉₅	4900 ₉₅
	40	7700	8100	6800 ₁₅	6800 ₁₅	6100 ₅₀	6100 ₅₅	5600 ₉₅	5600 ₉₅	5000 ₁₁₅	5000 ₁₁₅
	60	7200	7400	6300 ₁₅	6300 ₂₀	5600 ₅₅	5700 ₅₅	5200 ₉₅	5200 ₉₅	4800 ₁₂₀	4700 ₁₂₅
	90	6700	6800	5700 ₂₀	5800 ₂₀	5200 ₅₅	5200 ₅₅	4800 ₁₀₀	4800 ₁₀₀	4500 ₁₃₀	4400 ₁₃₀

NOTES:

- D = member depth, B = member breadth, NS = not suitable.
- End bearing lengths = 70 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 70 mm at end supports and 70 mm at internal supports
- Restraint value for slenderness calculations is 1200 mm
- Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

Single span Verandah beam AS 4055 classification C1 - C3



EXAMPLE:

wind speed = N4
sheet roof - 40 kg/m²
rafter/truss spacing = 600 mm
verandah span = 3500 mm
roof load width = 3900 mm
Enter span table at 4500 roof load width column, rafter spacing of 600 mm, and read down to a span equal to or greater than 3500 mm in the 40 kg/m² row

ADOPT:

SmartLVL 14 - 290 x45

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Verandah beam span - Single span (mm)									
90x45	10	1700	1600	1300	NS	1100	NS	NS	NS	NS	NS
	20	1700	1600	1300	NS	1100	NS	NS	NS	NS	NS
	40	1700	1600	1300	NS	1100	NS	NS	NS	NS	NS
	60	1500	1400	1200	NS	1000	NS	NS	NS	NS	NS
	90	1400	1200	1000	NS	NS	NS	NS	NS	NS	NS
140x45	10	2600	2700	2100	2000	1700	1300	1400	NS	1300	NS
	20	2600	2700	2100	2000	1700	1300	1400	NS	1300	NS
	40	2600	2700	2100	2100	1700	1400	1500	NS	1300	NS
	60	2400	2500	1900	1900	1600	1500	1400	NS	1300	NS
	90	2100	2100	1600	1600	1400	1300	1300	NS	1200	NS
190x45	10	3600	3600	2800	2700	2300	2200	2000	1600	1700	1100
	20	3600	3600	2800	2800	2400	2200	2000	1600	1700	1200
	40	3600	3600	2800	2800	2400	2300	2000	1700	1800	1300
	60	3300	3200	2600	2600	2200	2200	2000	1900	1800	1500 ₁₅
	90	2900	2900	2300	2200	1900	1900	1700	1700	1600	1200
240x45	10	4600	4500	3600	3400	2900	2800	2500	2400 ₅	2200	1800
	20	4600	4500	3600	3400	2900	2800	2500	2400 ₅	2300	1800
	40	4500	4500	3600	3500	3000	2900	2600	2500 ₁₀	2300 ₅	2200 ₅
	60	4100	4100	3300	3200	2800	2800	2500 ₅	2500 ₁₅	2300 ₁₀	2300 ₁₅
	90	3600	3600	2900	2900	2500	2500	2200	2200	2100	1800 ₁₅
290x45	10	5500	5500	4200	4100	3500	3300	3000	2900 ₁₅	2700 ₁₀	2600 ₂₅
	20	5500	5500	4300	4200	3500	3300	3000	2900 ₁₅	2700 ₁₀	2600 ₂₅
	40	5100	5200	4300	4300	3600	3400	3100	2900 ₂₀	2700 ₁₅	2700 ₃₀
	60	4700	4700	3900	3900	3400	3400	3000 ₅	3000 ₂₅	2800 ₂₀	2700 ₄₀
	90	4300	4300	3500	3400	3000	3000 ₅	2700 ₁₀	2700 ₂₅	2500 ₃₀	2500 ₅₀
300x45	10	5700	5700	4400	4300	3600	3400	3100	2900 ₁₀	2700 ₁₀	2700 ₂₅
	20	5700	5700	4400	4400	3600	3400	3100	3000 ₁₅	2800 ₁₀	2700 ₂₅
	40	5300	5300	4400	4400	3700	3500	3200	3000 ₂₀	2800 ₁₅	2700 ₃₀
	60	4800	4800	4000	4000	3500	3500	3100 ₅	3100 ₂₀	2900 ₃₅	2800 ₄₀
	90	4400	4400	3600	3600	3100	3100 ₅	2800 ₁₀	2800 ₃₅	2600 ₃₀	2600 ₅₀
360x45	10	6600	6600	5200	5100	4200	4100 ₁₀	3700 ₁₅	3500 ₅	3300 ₁₀	3100 ₃₅
	20	6600	6600	5200	5200	4300 ₅	4200 ₁₅	3700 ₂₀	3500 ₁₀	3300 ₁₅	3200 ₃₅
	40	6000	6000	5100	5000	4400 ₅	4300 ₂₀	3800 ₂₅	3600 ₁₅	3400 ₂₀	3200 ₄₀
	60	5500	5500	4600	4600	4200 ₁₅	4200 ₂₅	3800 ₃₀	3700 ₂₅	3500 ₂₀	3300 ₄₅
	90	5000	5000	4200	4200	3800 ₁₀	3700 ₅	3400 ₁₀	3300 ₂₅	3100 ₄₀	3100 ₆₀

Single span Verandah beam AS 4055 classification C1 - C3 (Cont'd)

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Verandah beam span - Single span (mm)									
90x63	10	1900	1900	1500	1200	1300	NS	1100	NS	NS	NS
	20	1900	1900	1500	1200	1300	NS	1100	NS	NS	NS
	40	1900	1900	1500	1300	1300	NS	1100	NS	1000	NS
	60	1700	1700	1400	1100	1200	NS	1000	NS	NS	NS
	90	1500	1400	1200	1000	1000	NS	NS	NS	NS	NS
140x63	10	3000	3000	2300	2400	2000	1800	1700	1400	1500	NS
	20	3000	3000	2300	2400	2000	1900	1700	1400	1500	NS
	40	3000	3000	2300	2400	2000	2000	1800	1500	1600	1100
	60	2700	2700	2100	2100	1800	1800	1600	1500	1500	1200
	90	2400	2400	1800	1800	1600	1500	1400	1300	1300	1000
190x63	10	4000	4000	3200	3200	2700	2700	2400	2300	2100	2000
	20	4000	4000	3200	3200	2800	2700	2400	2300	2100	2000
	40	4000	4000	3200	3200	2800	2700	2500	2300	2200	2100
	60	3600	3600	2900	2900	2500	2500	2200	2200	2000	2000
	90	3200	3200	2500	2600	2200	2200	2000	1900	1800	1800
240x63	10	5100	5100	4000	4000	3400	3300	2900	2800	2600	2600
	20	5100	5100	4000	4000	3500	3300	3000	2900	2700	2600
	40	4800	4800	4000	4000	3500	3400	3000	2900	2700	2700 ₅
	60	4400	4400	3600	3600	3100	3100	2800	2800	2600	2600 ₁₀
	90	4000	4000	3200	3200	2800	2800	2500	2500	2300	2300
290x63	10	6100	6100	4900	4900	4100	4000	3600	3400	3200	3000
	20	6100	6100	4900	4900	4100	4000	3600	3400	3200	3100 ₅
	40	5500	5500	4700	4600	4200	4100	3700	3500	3300	3100 ₅
	60	5100	5100	4300	4300	3800	3800	3400	3400	3100	3100 ₁₅
	90	4700	4600	3900	3900	3400	3300	3000	3000 ₅	2800	2800 ₁₅
300x63	10	6300	6300	5100	5100	4200	4100	3700	3500	3300	3100
	20	6300	6300	5100	5100	4300	4200	3700	3500	3300	3200
	40	5700	5700	4800	4800	4300	4300	3800	3600	3400	3200 ₅
	60	5200	5200	4400	4400	3900	3900	3500	3500	3200	3200 ₁₀
	90	4800	4800	4000	4000	3500	3400	3100	3100	2900 ₁₀	2900 ₂₅
360x63	10	7200	7200	6100	6000	5000	5000	4300	4300 ₅	3900 ₁₀	3700
	20	7200	7200	6100	6000	5100	5000	4400	4300 ₁₀	3900 ₁₀	3800 ₅
	40	6500	6500	5500	5500	4900	4900 ₅	4500	4500 ₁₀	4000 ₁₅	3900 ₁₀
	60	5900	5900	5000	5000	4500	4500	4200 ₁₀	4200 ₂₀	3900 ₂₀	3800 ₁₅
	90	5400	5400	4600	4600	4100	4100	3800 ₁₀	3700 ₅	3500	3400 ₁₅

Continuous span Verandah beam AS 4055 classification C1 - C3

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Verandah beam span - Continuous span (mm)									
90x45	10	2000	1900	1400	1000	1000	NS	NS	NS	NS	NS
	20	2000	2000	1400	1000	1000	NS	NS	NS	NS	NS
	40	2100	2000	1400	1200	1200	NS	NS	NS	NS	NS
	60	2100	2000	1500	1200	1300	NS	NS	NS	NS	NS
	90	1800	1800	1400	1200	1200	NS	NS	NS	NS	NS
140x45	10	3000	3000	2100	2000	1600	1500	1500	NS	1300 ₁₀	NS
	20	3100	3100	2200	2100	1600	1600	1500	NS	1300 ₁₅	NS
	40	3100	3100	2200	2100	1800	1600	1600 ₁₀	1100	1000	NS
	60	3200	3200	2200	2200	1800 ₅	1600	1600 ₁₅	1200 ₅	1400 ₂₅	NS
	90	2900	2900	2200	2100	1800 ₅	1600	1500 ₂₀	NS	1300 ₃₅	NS
190x45	10	4100	4000	2800	2900	2300 ₁₀	2100 ₅	1700 ₁₀	1500	NS	1000
	20	4100	4100	2900	2900	2300 ₁₀	2200 ₁₀	1800 ₁₅	1600 ₅	1600 ₂₅	1200 ₁₀
	40	4200	4200	2900	2900 ₅	2400 ₂₀	2400 ₂₀	1900 ₂₅	1600 ₁₅	1600 ₃₅	1300 ₂₀
	60	4300	4300	3000 ₁₀	3000 ₁₀	2500 ₃₀	2600 ₃₀	2100 ₄₅	1600 ₂₀	1600 ₄₅	1400 ₃₀
	90	3900	3900	2900 ₁₅	2900 ₁₅	2400 ₃₅	2400 ₃₅	1800 ₄₀	1600 ₂₅	1600 ₅₀	1300 ₃₀

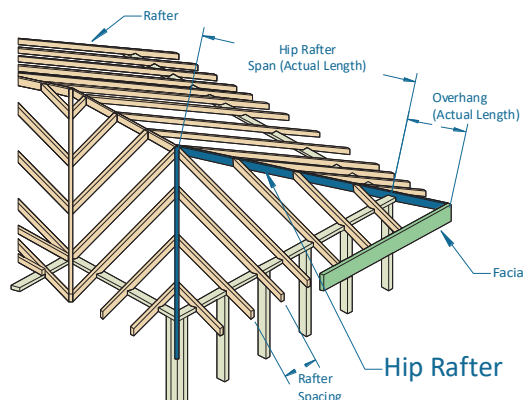
Continuous span Verandah beam AS 4055 classification C1 - C3

Roof load width (mm)		1500		3000		4500		6000		7500	
Rafter/truss spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Verandah beam span - Continuous span (mm)									
240x45	10	5100	5100	3600 ₁₀	3500 ₁₀	2900 ₃₀	2900 ₃₀	2500 ₄₅	2500 ₄₅	1900 ₄₀	1900 ₄₀
	20	5100	5100	3600 ₁₀	3500 ₁₀	2900 ₃₅	2900 ₃₀	2500 ₅₀	2600 ₆₀	2000 ₅₀	1600 ₃₀
	40	5200	5200	3700 ₂₀	3600 ₂₀	3000 ₄₅	3000 ₄₅	2600 ₆₅	2700 ₈₀	2100 ₇₀	1900 ₅₅
	60	5100	5100	3800 ₃₀	3700 ₃₀	3100 ₅₅	3000 ₅₅	2700 ₉₀	2700 ₉₀	2300 ₁₀₀	1900 ₇₀
	90	4700	4600	3700 ₃₅	3600 ₃₅	3000 ₆₅	3000 ₇₀	2500 ₉₅	2600 ₁₀₅	2000 ₉₅	1600 ₅₅
290x45	10	6000	6000	4200 ₂₅	4200 ₂₅	3500 ₅₀	3400 ₄₅	3000 ₈₀	3000 ₈₅	2500 ₉₀	2600 ₉₅
	20	6100	6000	4300 ₃₀	4300 ₃₀	3500 ₅₅	3400 ₅₅	3000 ₉₀	3000 ₉₀	2500 ₁₀₀	2800 ₁₁₅
	40	6200 ₅	6200 ₅	4400 ₄₀	4400 ₄₀	3600 ₇₅	3500 ₇₀	3100 ₁₀₅	3100 ₁₀₅	2600 ₁₂₀	2800 ₁₃₀
	60	5900 ₅	5900 ₅	4500 ₅₀	4400 ₅₀	3700 ₉₅	3600 ₉₀	3200 ₁₂₀	3200 ₁₂₀	2800 ₁₄₅	2800 ₁₅₀
	90	5400 ₅	5400 ₅	4400 ₆₀	4400 ₆₀	3600 ₁₀₅	3500 ₁₀₀	3100 ₁₃₀	3100 ₁₃₀	2500 ₁₄₀	2800 ₁₆₀
300x45	10	6200	6200	4400 ₃₀	4400 ₃₀	3600 ₅₅	3500 ₅₀	3100 ₉₀	3100 ₉₀	2600 ₉₅	2800 ₁₁₀
	20	6300	6300	4400 ₃₀	4400 ₃₀	3600 ₆₀	3500 ₆₀	3100 ₉₅	3100 ₉₅	2600 ₁₁₀	2800 ₁₂₀
	40	6400 ₁₀	6400 ₁₀	4500 ₄₅	4500 ₄₀	3700 ₈₅	3600 ₈₀	3200 ₁₁₀	3200 ₁₁₀	2800 ₁₂₅	2900 ₁₃₅
	60	6000 ₁₀	6000 ₁₀	4600 ₅₅	4600 ₅₅	3800 ₁₀₀	3700 ₉₅	3300 ₁₂₅	3200 ₁₂₅	2900 ₁₄₅	2900 ₁₅₀
	90	5500 ₁₀	5500 ₁₀	4500 ₆₅	4500 ₆₅	3700 ₁₁₀	3600 ₁₀₅	3200 ₁₃₅	3200 ₁₃₅	2600 ₁₄₀	2800 ₁₆₅
360x45	10	7400 ₁₀	7400 ₁₀	5200 ₅₀	5200 ₅₀	4200 ₉₀	4200 ₉₀	3700 ₁₁₅	3400 ₁₀₅	3300 ₁₄₀	3100 ₁₃₀
	20	7400 ₁₅	7400 ₁₅	5300 ₅₅	5300 ₅₅	4300 ₉₅	4300 ₁₀₀	3700 ₁₂₅	3400 ₁₁₅	3400 ₁₅₅	3100 ₁₄₀
	40	7300 ₂₀	7500 ₂₀	5400 ₇₅	5400 ₇₅	4400 ₁₁₅	4400 ₁₁₅	3800 ₁₄₀	3500 ₁₂₅	3400 ₁₇₀	3000 ₁₄₅
	60	6800 ₂₀	6900 ₂₀	5500 ₉₀	5500 ₉₀	4500 ₁₃₀	4500 ₁₃₀	3900 ₁₆₀	3900 ₁₆₀	3400 ₁₉₀	3300 ₁₇₅
	90	6300 ₂₀	6300 ₂₀	5300 ₁₀₀	5300 ₁₀₀	4400 ₁₄₀	4400 ₁₄₀	3800 ₁₇₅	3400 ₁₆₀	3400 ₂₀₅	3200 ₁₉₀
140x63	10	3600	3500	2600	2600	2100	2000	1800	1600	1600	1300
	20	3600	3600	2600	2600	2100	2000	1800	1600	1600	1300
	40	3800	3600	2600	2700	2100	2000	1800	1600	1600	1300
	60	3600	3600	2700	2700	2200	2100	1900	1600	1600 ₅	1400
	90	3200	3100	2500	2500	2100	2000	1800 ₅	1600	1600 ₁₅	1300
190x63	10	4800	4800	3400	3300	2800	2800	2400 ₅	2400 ₅	2200 ₂₀	1700 ₅
	20	4900	4900	3400	3400	2800	2800	2400 ₁₀	2400 ₁₀	2200 ₂₅	1700 ₅
	40	5000	5000	3500	3400	2800 ₅	2900 ₅	2500 ₂₀	2600 ₂₅	2200 ₃₀	1700 ₁₀
	60	4700	4600	3600	3500	2900 ₁₀	2900 ₁₀	2500 ₃₀	2600 ₃₅	2300 ₄₀	1900 ₂₀
	90	4200	4200	3400	3400	2800 ₂₀	2800 ₂₀	2400 ₃₅	2400 ₃₀	2200 ₄₅	1700 ₂₀
240x63	10	6000	5900	4200	4200	3500 ₁₅	3400 ₁₀	3000 ₂₅	3000 ₃₀	2700 ₄₀	2700 ₄₅
	20	6000	6000	4300	4300	3500 ₁₅	3400 ₁₅	3000 ₃₀	3000 ₃₀	2700 ₄₅	2700 ₅₀
	40	6000	6000	4400 ₅	4300 ₅	3600 ₂₅	3500 ₂₅	3100 ₄₀	3100 ₄₀	2800 ₆₀	2800 ₆₅
	60	5500	5500	4500 ₁₅	4400 ₁₀	3600 ₃₅	3600 ₃₅	3200 ₅₅	3100 ₅₀	2800 ₈₀	2800 ₈₅
	90	5000	5100	4200 ₁₅	4200 ₂₀	3500 ₄₀	3500 ₄₀	3000 ₆₀	3000 ₆₀	2700 ₉₀	2700 ₉₅
290x63	10	7200	7100	5000 ₁₀	5100 ₁₀	4100 ₃₀	4100 ₃₀	3600 ₅₀	3500 ₄₅	3200 ₇₀	3200 ₆₅
	20	7200	7200	5100 ₁₅	5100 ₁₅	4200 ₃₅	4200 ₃₅	3600 ₅₅	3500 ₅₀	3200 ₈₅	3200 ₇₅
	40	6800	6900	5200 ₂₀	5200 ₂₀	4200 ₄₅	4200 ₄₅	3700 ₇₅	3600 ₇₀	3300 ₉₅	3200 ₉₅
	60	6300	6300	5300 ₃₀	5300 ₃₀	4300 ₅₅	4300 ₅₅	3800 ₉₀	3700 ₉₀	3400 ₁₁₀	3200 ₁₀₅
	90	5800	5800	4900 ₃₀	4900 ₃₀	4200 ₇₀	4200 ₇₀	3600 ₁₀₀	3600 ₁₀₀	3200 ₁₂₀	3200 ₁₁₅
300x63	10	7400	7400	5200 ₁₀	5200 ₁₀	4200 ₃₅	4200 ₃₀	3700 ₅₀	3600 ₅₀	3300 ₈₀	3200 ₈₀
	20	7500	7500	5300 ₁₅	5300 ₁₅	4300 ₄₀	4300 ₄₀	3700 ₅₅	3600 ₆₀	3400 ₉₀	3300 ₈₅
	40	6900	7100	5400 ₂₅	5400 ₂₅	4400 ₅₀	4400 ₅₀	3800 ₈₀	3700 ₈₅	3400 ₁₀₀	3200 ₉₅
	60	6400	6500	5500 ₃₅	5500 ₃₅	4500 ₆₀	4400 ₆₀	3900 ₉₅	3800 ₉₅	3500 ₁₁₅	3300 ₁₀₅
	90	6000	6000	5000 ₃₀	5000 ₃₀	4300 ₈₀	4400 ₈₀	3700 ₁₀₅	3700 ₁₀₅	3400 ₁₃₀	3300 ₁₂₀
360x63	10	8300	8700	6200 ₃₀	6100 ₃₀	5000 ₅₅	5000 ₅₀	4400 ₉₀	4400 ₉₀	3900 ₁₁₀	3900 ₁₁₀
	20	8300	8800	6200 ₃₅	6200 ₃₅	5100 ₆₀	5100 ₆₀	4400 ₉₅	4400 ₉₅	4000 ₁₂₀	4000 ₁₂₀
	40	7700	8100	6400 ₄₅	6400 ₄₅	5200 ₈₅	5200 ₈₅	4500 ₁₁₀	4500 ₁₁₀	4000 ₁₃₅	4000 ₁₃₀
	60	7200	7400	6300 ₅₀	6300 ₅₀	5300 ₁₀₀	5300 ₁₀₀	4600 ₁₂₅	4600 ₁₂₅	4100 ₁₅₀	4100 ₁₅₀
	90	6700	6800	5700 ₅₀	5800 ₅₀	5200 ₁₁₀	5200 ₁₁₀	4400 ₁₃₅	4500 ₁₄₀	4000 ₁₆₀	4000 ₁₆₅

NOTES:

- D = member depth, B = member breadth, NS = not suitable.
- End bearing lengths = 70 mm at end supports and 70 mm at internal supports for continuous members. Subscript values indicate the minimum additional bearing length where required to be greater than 70 mm at end supports and 70 mm at internal supports
- Restraint value for slenderness calculations is 1200 mm
- Not all sizes of SmartLVL in this table are stocked in each state. (Please check with your supplier before ordering.)

Hip rafter - sheet and tile roof AS 4055 wind classification N1 - N4 and C1 - C3



EXAMPLE:

wind speed = N4
roof load = 40 kg/m² (sheet roof)
hip rafter span = 4500 mm (single span)
rafter spacing = 600 mm

Enter column at (N1-N4) wind speed, 600 mm rafter spacing and read down to span equal to or greater than 4500 mm for a 40 kg/m² roof load

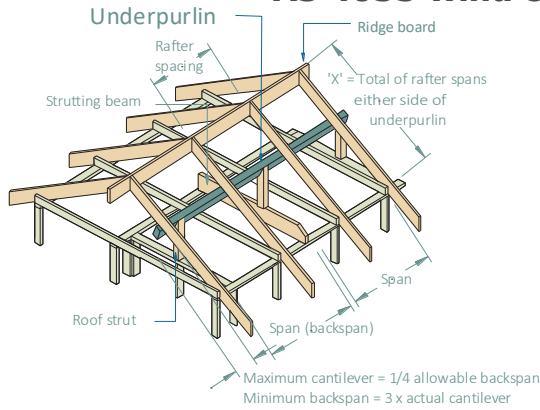
ADOPT: SmartLVL 14 - 240x45

AS 4055 wind category		N1 - N4				C1 - C3			
Maximum rafter spacing (mm)		600		1200		600		1200	
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum hip rafter and overhang span - single span (mm)							
		span	O/H	span	O/H	span	O/H	span	O/H
90x45	40	2300	200	2300	200	2300	200	2300	200
	90	1900	200	1900	250	1900	200	1900	250
140x45	40	3200	300	3200	300	3200	300	3200	300
	90	2700	300	2700	300	2700	300	2700	300
190x45	40	4100	550	4100	550	4100	550	4100	550
	90	3400	550	3400	550	3400	550	3400	550
240x45	40	4800	850	4800	850	4800 ₅	850	4800 ₅	850
	90	4000	800	4000	800	4000	800	4000	800
290x45	40	5500	1050	5500	1050	5500 ₁₅	1050	5500 ₁₅	1050
	90	4700	1000	4700	1000	4700 ₁₀	1000	4700 ₁₀	1000
300x45	40	5600	1100	5600	1100	5600 ₂₀	1100	5600 ₂₀	1100
	90	4800	1000	4800	1000	4800 ₁₀	1000	4800 ₁₀	1000
360x45	40	6300 ₅	1400	6300 ₅	1400	6300 ₃₀	1400	6300 ₃₀	1400
	90	5500	1300	5500	1250	5500 ₂₅	1300	5500 ₂₅	1250
90x63	40	2500	250	2500	250	2500	250	2500	250
	90	2100	250	2100	250	2100	250	2100	250
140x63	40	3500	500	3500	500	3500	500	3500	500
	90	2900	500	2900	500	2900	500	2900	500
190x63	40	4400	850	4400	850	4400	850	4400	850
	90	3700	800	3700	800	3700	800	3700	800
240x63	40	5200	1150	5200	1100	5200	1150	5200	1100
	90	4400	1050	4400	1050	4400	1050	4400	1050
290x63	40	6000	1450	5900	1450	6000 ₁₀	1450	5900 ₁₀	1450
	90	5000	1300	5000	1300	5000	1300	5000	1300
300x63	40	6000	1500	6000	1500	6000 ₁₀	1500	6000 ₁₀	1500
	90	5200	1350	5200	1350	5200 ₅	1350	5200 ₅	1350
360x63	40	6700	1900	6700	1850	6700 ₂₀	1800	6700 ₂₀	1800
	90	5900	1650	5900	1650	5900 ₁₅	1650	5900 ₁₅	1650

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a batten spacing of 900 mm
3. Minimum backspan = 200 % of overhang, Maximum birdsmouth depth = 15 % of depth
4. End bearing length = 45 at end supports. Subscript values indicate the minimum additional bearing length where required to be greater than 45 mm at end support
6. Construction loads shall not be applied to overhangs until a 190 x 19 mm (min) timber fascia or other fascia of equivalent stiffness is rigidly and permanently attached to the end of rafter overhangs
7. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

Underpurlins - sheet and tiled roof AS 4055 wind classification N1 - N4 and C1 - C3



RLW = X/2 where ridge is strutted

EXAMPLE:

wind speed = N4
rafter spacing = 1200 mm
roof load = 20 kg/m² (sheet roof)
underpurlin span = 3500 mm (single span)

'X' (total of rafter span) = 5400 mm
roof load width = 'X' / 2 = 5400 / 2 = 2700 mm

Enter single span table at 2700 mm roof load width column, 1200 rafter spacing and read down to span equal to or greater than 3500 mm in a 20 kg/m² row

ADOPT:

SmartLVL 14 - 190x63

Wind classification N1-N4

Roof load width (mm)		1800		2700		3600		1800		2700		3600	
rafter spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Single span						Continuous span					
		Maximum recommended Underpurlin span (mm)											
90x45	20	2200	2200	1900	1900	1700	1700	2800	2800	2300	2300	2000	1900
	60	1500	1400	1300	1100	1200	1000	2100	2000	1800	1800	1600	1400
140x45	20	3400	3300	3000	3000	2700	2700	4300	4300	3500	3400	3000	3000
	60	2400	2400	2100	2000	1900	1900	3200	3100	2800	2800	2500	2600
90x63	20	2400	2500	2100	2100	1900	1900	3300	3200	2700	2700	2400	2500
	60	1700	1600	1500	1300	1300	1100	2300	2200	2000	1900	1800	1800
140x63	20	3800	3700	3300	3300	3000	3000	5000	5100	4100	4100	3600	3500
	60	2600	2700	2300	2300	2100	2100	3600	3500	3100	3100	2800	2800
190x63	20	5100	5100	4500	4500	4100	4100	6700	6700	5500	5500	4700	4700
	60	3600	3500	3100	3100	2900	2900	4800	4800	4200	4200	3900 ₅	3800 ₅
240x63	20	6300	6300	5600	5600	5100	5200	7900	8300	6800 ₅	6800 ₅	5900 ₁₀	5800 ₁₀
	60	4500	4500	4000	4000	3600	3600	6100	6100	5400 ₅	5400 ₅	4900 ₂₀	4900 ₂₀

Wind classification C1-C3

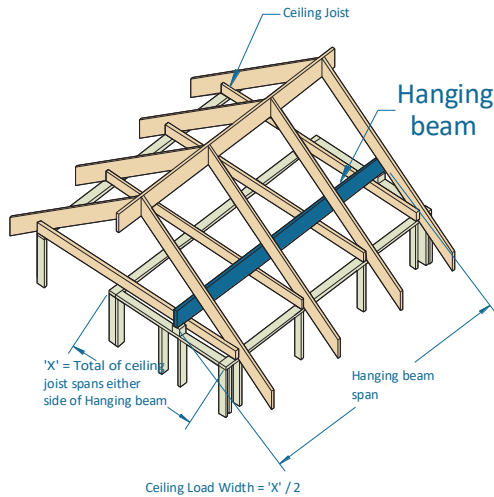
Roof load width (mm)		1800		2700		3600		1800		2700		3600	
rafter spacing (mm)		600	1200	600	1200	600	1200	600	1200	600	1200	600	1200
Member size DxB (mm)	Roof mass (kg/m ²)	Single span						Continuous span					
		Maximum recommended Underpurlin span (mm)											
90x45	20	1800	1500	1400	1000	1200	NS	1800	1800	1500	1300	1300	NS
	60	1500	1400	1300	1100	1200	NS	1900	1900	1600	1500	1400	1000
140x45	20	2800	2700	2300	2100	1900	1700	2800	2800	2300	2300	2000 ₁₀	1600
	60	2400	2400	2100	2000	1900	1900	2900	2900	2400 ₁₀	2500 ₁₅	2100 ₂₀	2000 ₂₀
90x63	20	2200	2000	1700	1400	1500	1000	2200	2200	1700	1700	1500	1300
	60	1700	1600	1500	1300	1300	1100	2300	2200	1900	1800	1600	1600
140x63	20	3300	3200	2700	2600	2300	2200	3300	3300	2700	2700	2300	2300
	60	2600	2700	2300	2300	2100	2100	3500	3400	2800	2800	2500 ₁₀	2600 ₁₀
190x63	20	4400	4400	3600	3400	3100	3000	4400	4400	3600 ₅	3500 ₅	3100 ₁₅	3100 ₁₅
	60	3600	3500	3100	3100	2900	2900	4700 ₅	4600 ₁₀	3800 ₂₀	3700 ₂₀	3300 ₃₀	3200 ₃₀
240x63	20	5500	5400	4500	4400	3900	3700	5500 ₅	5500 ₅	4500 ₂₀	4500 ₂₀	3900 ₃₀	3900 ₃₀
	60	4500	4500	4000	4000	3600	3600	5800 ₂₀	5700 ₂₀	4700 ₃₅	4700 ₃₅	4100 ₅₀	4100 ₅₀

NOTES:

- D = member depth, B = member breadth, NS = not suitable.
- Maximum cantilever = 1/4 allowable backspan
- Minimum backspan = 3 x actual cantilever
- End bearing length = 45 at end supports and 45 mm at internal for continuous member. Subscript values indicate the minimum additional bearing length where required to be greater than 45 mm at end support and 45 mm at internal for continuous member
- Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

Hanging beam supporting ceiling loads only AS 4055 classification N1 - N4 and C1-C3

ceiling mass - 20 kg/m²



EXAMPLE:

wind speed = N4
hanging beam span = 4200 mm
X = 5000 mm

ceiling load width = $X/2 = 5000/2 = 2500$ mm

Enter column at 3000 mm ceiling load width & read down to a span greater than or equal to 4200 mm

ADOPT:

SmartLVL 14 - 240x45

Wind classification N1 - N4

Ceiling load width (mm)	1800	2400	3000	3600	4200	4800
Member size DxB (mm)	Maximum recommended Hanging beam span (mm)					
90x45	2250	2000	1850	1700	1600	1500
140x45	3450	3100	2850	2650	2500	2350
190x45	4350	4050	3800	3600	3400	3200
240x45	5150	4800	4500	4250	4100	3900
290x45	5900	5500	5150	4900	4700	4500
300x45	6050	5600	5300	5000	4800	4600
360x45	6850	6400	6050	5750	5500	5300
90x63	2500	2250	2050	1900	1800	1700
140x63	3750	3450	3200	2950	2800	2650
190x63	4700	4350	4100	3900	3700	3550
240x63	5550	5150	4850	4600	4400	4250
290x63	6300	5900	5550	5300	5100	4900
300x63	6450	6050	5700	5450	5200	5000
360x63	7350	6900	6500	6200	5950	5700

Wind classification C1 - C3

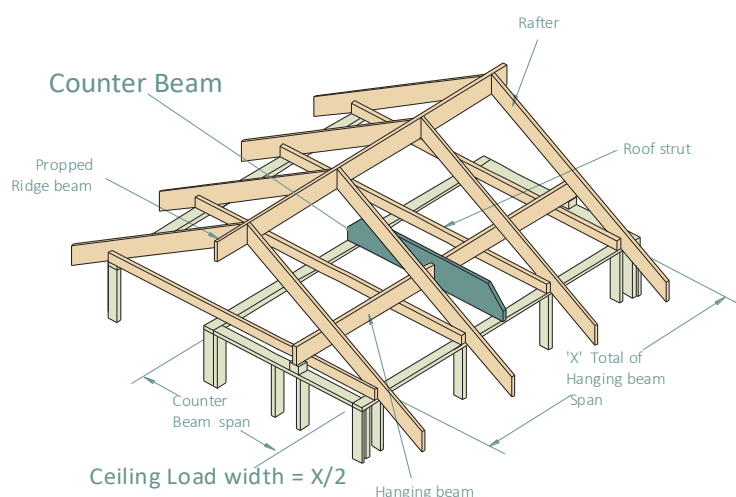
Ceiling load width (mm)	1800	2400	3000	3600	4200	4800
Member size DxB (mm)	Maximum recommended Hanging beam span (mm)					
90x45	2250	2000	1850	1700	1600	1500
140x45	3450	3100	2850	2600	2400	2250
190x45	4350	4050	3800	3450	3200	3000
240x45	5150	4800	4500	4250	3950	3700
290x45	5900	5500	5150	4900	4700	4400
300x45	6050	5600	5300	5000	4800	4550
360x45	6850	6400	6050	5750	5500	5300
90x63	2500	2250	2050	1900	1800	1700
140x63	3750	3450	3200	2950	2800	2650
190x63	4700	4350	4100	3900	3700	3550
240x63	5550	5150	4850	4600	4400	4250
290x63	6300	5900	5550	5300	5100	4900
300x63	6450	6050	5700	5450	5200	5000
360x63	7350	6900	6500	6200	5950	5700

NOTES:

1. D = member depth, B = member breadth, NS = not suitable
2. The above table was based on a maximum ceiling mass of 20 kg/m²
3. Minimum bearing length = 70 mm at end supports
4. Restraint value for slenderness calculations is 1500 mm
5. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

Counter beam supporting hanging beam AS 4055 classification N1 - N4

ceiling mass - 20 kg/m²



EXAMPLE:

wind speed = N4
total of hanging beam span = 6400 mm
ceiling load width = 'X' / 2 = 6400 / 2 = 3200 mm

counter beam span = 4500 mm

Enter column at 3600 mm ceiling load width and read down to a span greater than or equal to 4500 mm

ADOPT:

SmartLVL 14 - 290x45

Ceiling load width (mm)	600	1800	2400	3000	3600	4200	4800	5400	6600
Member size DxB (mm)	Maximum recommended Counter beam span (mm)								
90x45	2200	2200	2100	1900	1800	1700	1600	1500	1400
140x45	4200	3500	3100	2900	2700	2500	2400	2300	2100
190x45	5800	4600	4100	3800	3500	3300	3100	3000	2700
240x45	7000	5300	4900	4600	4300	4000	3800	3600	3300
290x45	7900	6100	5600	5200	4900	4700	4500	4300	3900
300x45	8100	6200	5700	5300	5000	4800	4600	4400	4000
360x45	9000	7000	6400	6000	5700	5400	5100	4900	4600
2/90x45	3200	2900	2600	2400	2200	2100	2000	1900	1700
2/140x45	5400	4200	3800	3500	3300	3100	2900	2800	2500
2/190x45	6700	5300	4900	4500	4300	4000	3800	3600	3300
2/240x45	7700	6100	5700	5300	5000	4800	4600	4400	4000
2/290x45	8600	6900	6400	6000	5700	5400	5200	5000	4600
2/300x45	8800	7100	6600	6100	5800	5500	5300	5100	4700
2/360x45	9800	7900	7400	6900	6500	6200	5900	5700	5300
90x63	2600	2600	2300	2100	2000	1900	1800	1700	1600
140x63	4800	3800	3500	3200	3000	2800	2600	2500	2300
190x63	6300	4900	4500	4200	3900	3600	3400	3300	3000
240x63	7300	5700	5300	4900	4700	4400	4200	4000	3600
290x63	8300	6500	6000	5600	5300	5000	4800	4600	4300
300x63	8400	6600	6100	5700	5400	5100	4900	4700	4400
360x63	9500	7400	6900	6400	6000	5800	5500	5300	5000

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
3. The above table was based on a maximum ceiling mass of 20 kg/m²
4. Minimum bearing length = 70 mm at end supports
4. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering
5. Top edge of Counter beams with D/B > 3 shall be laterally restrained as per details on page 9

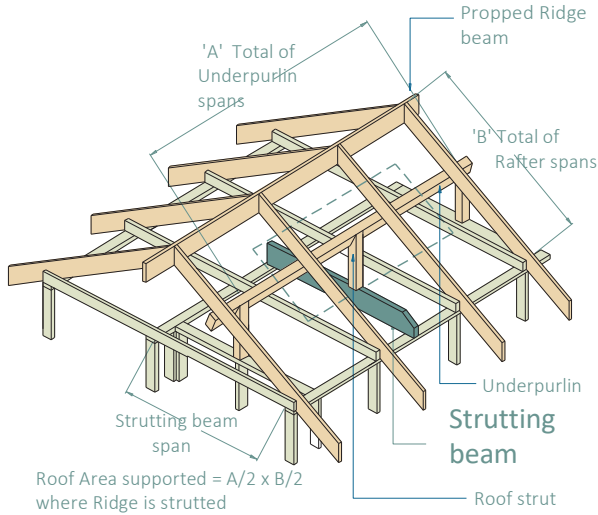
Counter beam supporting hanging beam AS 4055 classification C1 - C3

Ceiling load width (mm)	600	1800	2400	3000	3600	4200	4800	5400	6600
Member size DxB (mm)	Maximum recommended Counter beam span (mm)								
90x45	2200	2200	2100	1900	1700	1600	1500	1400	1200
140x45	4200	3500	3100	2800	2600	2400	2200	2100	1900
190x45	5800	4600	4100	3800	3400	3200	2900	2800	2500
240x45	7000	5300	4900	4600	4200	3900	3600	3400	3100
290x45	7900	6100	5600	5200	4900	4600	4300	4000	3600
300x45	8100	6200	5700	5300	5000	4800	4400	4200	3800
360x45	9000	7000	6400	6000	5700	5400	5100	4900	4400
2/90x45	3200	2900	2600	2400	2200	2100	2000	1900	1700
2/140x45	5400	4200	3800	3500	3300	3100	2900	2800	2500
2/190x45	6700	5300	4900	4500	4300	4000	3800	3600	3300
2/240x45	7700	6100	5700	5300	5000	4800	4600	4400	4000
2/290x45	8600	6900	6400	6000	5700	5400	5200	5000	4600
2/300x45	8800	7100	6600	6100	5800	5500	5300	5100	4700
2/360x45	9800	7900	7400	6900	6500	6200	5900	5700	5300
90x63	2600	2600	2300	2100	2000	1900	1800	1600	1500
140x63	4800	3800	3500	3200	3000	2800	2600	2500	2200
190x63	6300	4900	4500	4200	3900	3600	3400	3300	2900
240x63	7300	5700	5300	4900	4700	4400	4200	4000	3600
290x63	8300	6500	6000	5600	5300	5000	4800	4600	4300
300x63	8400	6600	6100	5700	5400	5100	4900	4700	4400
360x63	9500	7400	6900	6400	6000	5800	5500	5300	5000

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
3. The above table was based on a maximum ceiling mass of 20 kg/m²
4. Minimum bearing length = 70 mm at end supports
4. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering
5. Top edge of Counter beams with D/B > 3 shall be laterally restrained as per details on page 9

Strutting beam supporting underpurlins AS 4055 classification N1 - N4 and C1 - C3



EXAMPLE:

wind speed = N4
sheet roof = 20 kg/m^2
total of underpurlin span 'A' = 5000 mm
total of rafter span 'B' = 4200 mm
roof area supported = $(A/2) \times (B/2)$
= $(5000/2) \times (4200/2)$
= 5250000 mm^2 (Convert to m^2)
= $5250000/1000000 = 5.25 \text{ m}^2$

strutting beam span = 4500 mm

Enter column at 6 m^2 roof area supported and read down to a span greater than or equal to 4500 mm for a 20 kg/m^2 roof

ADOPT: SmartLVL - 240x45

Roof area supported (m^2)		Wind classification N1-N4						Wind classification C1- C3					
		2	4	6	8	10	12	2	4	6	8	10	12
Size DxB (mm)	Roof Mass (kg/m^2)	Maximum recommended strutting beam span (mm)											
140x45	20	3700	3100	2550	2100	1700	1400	3600	1850	1200	NS	NS	NS
	60	2850	2050	1700	1450	1300	1000	2850	2000	1350	NS	NS	NS
190x45	20	5600	4750	4000	3500	2950	2450	5600	3250	2150	1600	NS	NS
	60	4400	3200	2650	2300	2050	1900	4400	3200	2350	1750	1050	NS
240x45	20	7050	6300	5550	4850	4400	3800	7050	5000	3350	2500	2000	1250
	60	6050	4550	3750	3250	2900	2700	6050	4550	3650	2750	2200	1600 ₅
290x45	20	8550	7450	6700	6200	5750	5300	8550	7150	4750	3550	2850	2350
	60	7150	5900	4950	4300	3850	3550	7200	5900	4950	3900	3100	2550 ₁₀
300x45	20	8850	7700	6950	6400	6000	5600	8850	7550	5050	3800	3000	2500
	60	7400	6100	5150	4500	4050	3750	7400	6100	5150	4100	3300	2750 ₁₀
360x45	20	10100	8950	8150	7550	7100	6750	10100	8950	7150	5350	4250	3550 ₅
	60	8600	7250	6450	5850	5300	4850	8650	7250	6450	5800	4600 ₅	3850 ₁₅
2/140x45	20	5200	4200	3500	3100	2800	2550	5200	4200	2800	2100	1700	1250
	60	3900	2850	2350	2050	1850	1700	3900	2850	2350	2050	1850	1500
2/190x45	20	7050	6100	5350	4750	4300	4000	7050	6100	4950	3700	2950	2450
	60	5850	4450	3700	3250	2900	2650	5800	4450	3700	3250	2900	2650
2/240x45	20	8350	7450	6800	6300	5900	5500	8350	7450	6800	5700	4600	3800
	60	7200	6050	5150	4500	4100	3750	7200	6050	5150	4500	4100	3750
2/290x45	20	9500	8650	7950	7450	7050	6700	9550	8650	7950	7450	6550	5400
	60	8350	7150	6450	5900	5350	4950	8350	7150	6450	5900	5350	4950
2/300x45	20	9750	8850	8200	7700	7250	6950	9700	8850	8200	7700	6950	5750
	60	8600	7400	6650	6100	5650	5150	8600	7400	6650	6100	5650	5150
2/360x45	20	10950	10150	9450	8950	8500	8150	10950	10150	9450	8950	8500	8050
	60	9900	8650	7850	7250	6800	6450	9900	8650	7850	7250	6800	6450
140x63	20	4400	3600	3000	2600	2350	1950	4400	2600	1700	1300	NS	NS
	60	3300	2400	2000	1700	1550	1400	3300	2400	1900	1400	NS	NS
190x63	20	6250	5450	4600	4050	3650	3400	6250	4550	3050	2300	1800	1350
	60	5100	3750	3150	2700	2450	2250	5050	3750	3150	2500	2000	1650
240x63	20	7900	6850	6200	5650	5100	4750	7900	6850	4700	3500	2800	2350
	60	6600	5250	4400	3850	3450	3150	6600	5250	4400	3800	3050	2550
290x63	20	9100	8050	7350	6800	6400	6100	9100	8050	6700	5000	4000	3300
	60	7750	6500	5750	5050	4550	4150	7750	6500	5750	5050	4300	3600
300x63	20	9300	8300	7550	7000	6600	6250	9300	8300	7150	5350	4250	3500
	60	8000	6750	6000	5300	4750	4400	8000	6750	6000	5300	4650	3850
360x63	20	10600	9550	8800	8250	7800	7400	10600	9550	8800	7450	5950	4950
	60	9250	7950	7100	6550	6100	5700	9300	7950	7100	6550	6100	5400

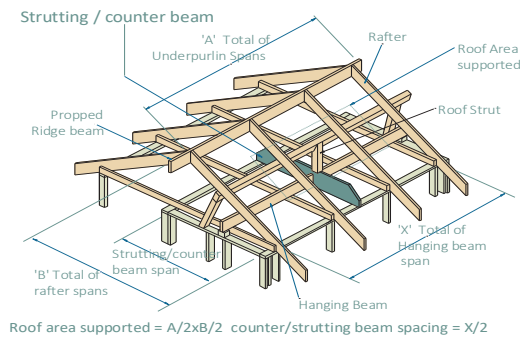
NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. Minimum bearing length = 70 mm at end supports
3. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering
4. Top edge of strutting beams with $D/B > 3$ shall be laterally restrained as per details on page 9

Strutting/counter beam supporting underpurlins & hanging beam AS 4055 classification N1 - N4

ceiling mass - 20 kg/m²

EXAMPLE:



wind speed = N4
 sheet roof = 40 kg/m²
 total of underpurlin span 'A' = 5000 mm
 total of rafter span 'B' = 4200 mm
 roof area supported = $(A/2) \times (B/2)$
 = $(5000/2) \times (4200/2)$
 = 5250000 mm² (Convert to m²)
 = 5250000/1000000 = 5.25 m²
 total of hanging beam span 'X' = 4500 mm
 effective beam spacing = $'X' / 2 = 4500 / 2 = 2250$ mm
 strutting counter beam span = 4500 mm

Enter column at 3600 mm effective beam spacing, 6 m² roof area supported and read down to a span greater than or equal to 4500 mm for a 40 kg/m² roof

ADOPT:

SmartLVL 14 - 360x45

Effective beam spacing (mm)		1800						3600					
Roof area supported (m ²)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended strutting/counter beam span (mm)											
140x45	40	2700	2200	1900	1650	1500	1350	2400	2050	1800	1600	1450	1350
	75	2300	1800	1500	1300	1150	1050	2150	1700	1450	1250	1150	1050
190x45	40	3800	3300	2850	2550	2350	2150	3400	3000	2700	2450	2250	2100
	75	3450	2750	2300	2050	1850	1700	3100	2600	2250	2000	1800	1650
240x45	40	4600	4150	3800	3500	3250	3000	4150	3850	3600	3300	3100	2900
	75	4250	3700	3200	2850	2600	2350	3950	3450	3050	2750	2500	2350
290x45	40	5400	4900	4500	4200	4000	3800	4850	4500	4250	4000	3850	3650
	75	5000	4400	3950	3650	3400	3150	4600	4150	3800	3550	3300	3050
300x45	40	5500	5000	4650	4350	4100	3900	4950	4650	4350	4150	3950	3800
	75	5150	4500	4100	3800	3550	3300	4750	4250	3950	3700	3450	3200
360x45	40	6350	5850	5450	5100	4850	4650	5700	5400	5100	4850	4650	4450
	75	6000	5300	4850	4500	4250	4000	5450	5000	4650	4350	4100	3900
2/140x45	40	3550	2950	2550	2300	2100	1950	3150	2700	2450	2200	2000	1900
	75	3100	2450	2050	1800	1650	1500	2850	2350	2000	1800	1600	1500
2/190x45	40	4550	4100	3750	3500	3200	3000	4100	3800	3550	3300	3050	2850
	75	4200	3650	3200	2800	2550	2350	3900	3450	3050	2750	2500	2300
2/240x45	40	5450	5000	4650	4350	4100	3950	4950	4650	4350	4150	3950	3800
	75	5100	4500	4100	3800	3550	3300	4700	4250	3950	3700	3450	3200
2/290x45	40	6300	5850	5450	5150	4900	4700	5700	5400	5100	4900	4700	4500
	75	5950	5300	4850	4550	4250	4050	5500	5000	4650	4400	4150	3950
2/300x45	40	6450	6000	5600	5300	5050	4850	5850	5550	5250	5000	4800	4650
	75	6100	5500	5000	4700	4400	4200	5600	5150	4800	4500	4300	4100
2/360x45	40	7350	6900	6500	6200	5900	5700	6700	6350	6100	5850	5650	5450
	75	7050	6400	5900	5500	5200	5000	6400	6000	5600	5300	5050	4850
140x63	40	3100	2550	2200	1950	1750	1600	2750	2350	2100	1850	1700	1600
	75	2700	2100	1750	1550	1350	1250	2450	2000	1700	1500	1350	1250
190x63	40	4150	3700	3300	3000	2750	2550	3800	3400	3100	2850	2600	2450
	75	3850	3150	2700	2400	2150	2000	3500	2950	2600	2300	2100	1950

Strutting/counter beam supporting underpurlins & hanging beam AS 4055 classification N1- N4 (Cont'd)

Effective beam spacing (mm)		1800						3600					
Roof area supported (m ²)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended strutting/counter beam span (mm)											
240x63	40	5050	4550	4200	3900	3700	3500	4550	4200	3950	3750	3550	3350
	75	4650	4100	3700	3350	3000	2800	4300	3850	3550	3200	2950	2750
290x63	40	5800	5350	4950	4650	4400	4200	5250	4950	4650	4400	4250	4050
	75	5450	4800	4400	4050	3850	3650	5000	4550	4200	3950	3750	3550
300x63	40	5950	5500	5100	4800	4550	4350	5350	5050	4800	4550	4350	4200
	75	5600	4950	4550	4200	3950	3750	5150	4700	4350	4050	3850	3650
360x63	40	6850	6350	5950	5650	5350	5150	6200	5850	5550	5300	5100	4900
	75	6500	5800	5350	5000	4700	4450	5900	5450	5100	4800	4550	4350

Strutting/counter beam supporting underpurlins & hanging beam AS 4055 classification C1 - C3

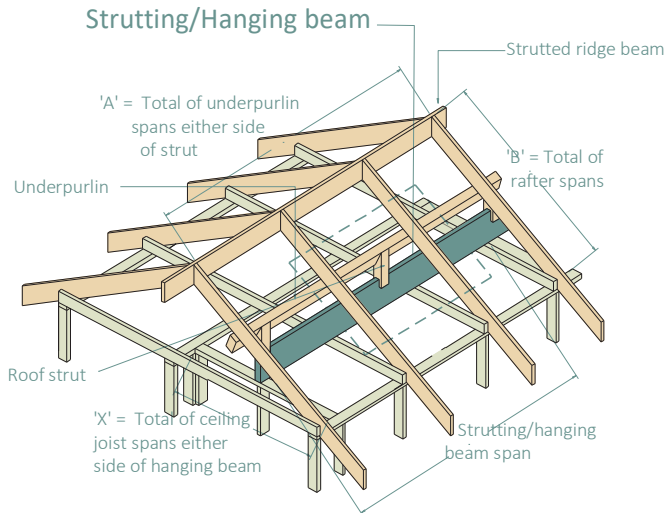
Effective beam spacing (mm)		1800						3600					
Roof area supported (m ²)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended strutting/counter beam span (mm)											
140x45	40	2700	1950	1300	NS	NS	NS	2400	2000	1300	NS	NS	NS
	75	2300	1800	1300	1000	NS	NS	2150	1700	1300	NS	NS	NS
190x45	40	3800	3300	2300	1700	1350	1100	3400	3000	2350	1700	1350	1150
	75	3450	2750	2250	1700	1400	1150	3100	2600	2200	1700	1350	1150
240x45	40	4600	4150	3600	2650	2100	1750	4200	3850	3600	2700	2150	1750
	75	4250	3700	3200	2650	2100	1750	3950	3450	3050	2550	2100	1750
290x45	40	5350	4900	4500	3800	3000	2500	4850	4500	4250	3850	3050	2500
	75	5000	4400	3950	3650	3000	2500	4600	4150	3800	3550	2950	2450
300x45	40	5500	5000	4650	4000	3200	2650	4950	4650	4350	4100	3250	2650
	75	5150	4500	4100	3800	3150	2650	4700	4250	3950	3700	3100	2600
360x45	40	6350	5850	5450	5100	4550	3750	5700	5400	5100	4850	4600	3800
	75	6000	5300	4850	4500	4250	3700	5450	5000	4650	4350	4100	3650
2/140x45	40	3550	2950	2550	2200	1750	1450	3100	2700	2450	2200	1800	1450
	75	3100	2450	2050	1800	1650	1500	2850	2350	2000	1800	1600	1500
2/190x45	40	4550	4100	3750	3500	3150	2600	4150	3800	3550	3300	3050	2600
	75	4200	3650	3200	2800	2550	2350	3900	3450	3050	2750	2500	2300
2/240x45	40	5450	5000	4650	4350	4100	3950	4950	4650	4350	4150	3950	3800
	75	5100	4500	4100	3800	3550	3300	4700	4250	3950	3700	3450	3200
2/290x45	40	6300	5850	5450	5150	4900	4700	5700	5400	5100	4900	4700	4500
	75	5950	5300	4850	4550	4250	4050	5500	5000	4650	4400	4150	3950
2/300x45	40	6450	6000	5600	5300	5050	4850	5850	5550	5250	5000	4800	4650
	75	6100	5500	5000	4700	4400	4200	5600	5150	4800	4500	4300	4100
2/360x45	40	7350	6900	6500	6200	5900	5700	6700	6350	6100	5850	5650	5450
	75	7050	6400	5900	5500	5200	5000	6400	6000	5600	5300	5050	4850
140x63	40	3100	2550	1800	1350	1050	NS	2750	2350	1850	1350	1100	NS
	75	2650	2100	1750	1350	1100	NS	2450	2000	1700	1350	1100	NS
190x63	40	4150	3700	3250	2400	1900	1600	3800	3400	3100	2450	1950	1600
	75	3850	3150	2700	2400	1950	1600	3550	2950	2600	2300	1900	1600
240x63	40	5050	4550	4200	3750	2950	2450	4550	4200	3950	3750	3000	2450
	75	4650	4100	3700	3350	2950	2450	4300	3850	3550	3200	2900	2450
290x63	40	5800	5350	4950	4650	4250	3500	5250	4950	4650	4400	4250	3550
	75	5450	4800	4400	4050	3850	3500	5000	4550	4200	3950	3750	3400
300x63	40	5950	5500	5100	4800	4500	3750	5350	5050	4800	4550	4350	3750
	75	5600	4950	4550	4200	3950	3700	5150	4700	4350	4050	3850	3600
360x63	40	6850	6350	5950	5650	5350	5150	6200	5850	5550	5300	5100	4900
	75	6500	5800	5350	5000	4700	4450	5900	5450	5100	4800	4550	4350

NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. Minimum bearing length = 70 mm at end supports.
3. The above table was based on a maximum ceiling mass of 20 kg/m²
4. Top edge of strutting/counter beams with D/B > 3 shall be laterally restrained as per details on page 9
5. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

Strutting/hanging beam AS 4055 classification N1 - N4

ceiling mass - 20 kg/m²



EXAMPLE:

wind speed = N4
 sheet roof = 40 kg/m²
 A = 5000 mm, B = 4200 mm
 roof area supported = (A/2) x (B/2)
 = (5000/2) x (4200/2)
 = 5250000 mm² (Convert to m²)
 = 5250000/1000000 = 5.25 m²
 strutting/hanging beam span = 4200 mm
 ceiling joist span ('X') = 4400 mm
 ceiling load width = ['X' / 2] = 4400/2 = 2200 mm

Enter column at 3600 mm ceiling load width, 6 m² roof area supported and read down to a span greater than or equal to 4200 mm for a 40 kg/m² roof

ADOPT:

SmartLVL 14 - 360x45

Roof area supported = A/2 x B/2 Ceiling load width = X/2

Ceiling load width (mm)		1800						3600					
Roof area supported (m ²)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum recommended Strutting/hanging beam span (mm)											
140x45	40	2600	2150	1850	1650	1500	1350	2200	1950	1700	1550	1400	1300
	75	2250	1750	1450	1300	1150	1000	2000	1650	1400	1250	1150	1000
190x45	40	3700	3200	2800	2500	2300	2150	3150	2800	2550	2350	2150	2050
	75	3300	2700	2300	2000	1800	1650	2900	2450	2150	1950	1750	1650
240x45	40	4500	4050	3750	3450	3200	2950	3950	3700	3400	3150	2950	2800
	75	4200	3650	3150	2800	2550	2350	3750	3300	2950	2650	2450	2300
290x45	40	5250	4800	4450	4150	3950	3750	4600	4300	4050	3900	3700	3550
	75	4900	4300	3950	3650	3350	3100	4350	4000	3700	3450	3200	2950
300x45	40	5400	4950	4600	4300	4050	3900	4700	4450	4200	4000	3850	3700
	75	5050	4450	4050	3750	3500	3250	4500	4100	3800	3600	3350	3100
360x45	40	6250	5750	5350	5050	4800	4600	5400	5150	4900	4700	4500	4350
	75	5900	5250	4800	4450	4200	4000	5200	4800	4500	4250	4050	3850
2/140x45	40	3400	2900	2500	2250	2050	1900	2850	2550	2300	2100	1950	1800
	75	3000	2400	2050	1800	1650	1500	2650	2200	1950	1750	1600	1450
2/190x45	40	4450	4050	3700	3450	3150	2950	3900	3650	3400	3150	2950	2750
	75	4150	3600	3150	2800	2550	2350	3700	3300	2900	2650	2450	2250
2/240x45	40	5350	4900	4550	4300	4100	3900	4700	4400	4200	4000	3850	3700
	75	5050	4450	4050	3750	3550	3300	4500	4100	3850	3600	3350	3150
2/290x45	40	6200	5750	5400	5100	4850	4650	5450	5150	4900	4700	4550	4400
	75	5850	5250	4800	4500	4250	4050	5250	4850	4500	4250	4050	3900
2/300x45	40	6350	5900	5550	5250	5000	4800	5550	5300	5050	4850	4700	4500
	75	6050	5400	4950	4650	4400	4150	5400	5000	4650	4400	4200	4000
2/360x45	40	7300	6850	6450	6150	5900	5650	6400	6100	5850	5650	5450	5300
	75	6950	6350	5850	5500	5200	4950	6200	5800	5450	5200	4950	4750
140x63	40	3000	2500	2150	1900	1750	1600	2500	2200	2000	1800	1650	1550
	75	2600	2050	1750	1500	1350	1250	2300	1900	1650	1450	1350	1250
190x63	40	4050	3650	3250	2950	2700	2500	3550	3200	2950	2700	2500	2350
	75	3750	3100	2650	2350	2150	1950	3300	2850	2500	2250	2050	1900

Strutting/hanging beam AS 4055 classification N1 - N4 (Cont'd)

Ceiling load width (mm)		1800						3600					
Roof area supported (m ²)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum strutting/hanging beam span (mm)											
240x63	40	4900	4450	4150	3850	3650	3450	4300	4050	3800	3600	3400	3250
	75	4550	4000	3650	3300	3000	2750	4100	3750	3400	3100	2850	2650
290x63	40	5700	5250	4900	4600	4350	4150	5000	4700	4450	4250	4100	3950
	75	5350	4750	4350	4050	3800	3600	4800	4400	4100	3850	3650	3450
300x63	40	5900	5400	5050	4750	4500	4300	5100	4850	4600	4400	4250	4100
	75	5500	4900	4500	4150	3950	3750	4900	4500	4200	3950	3750	3600
360x63	40	6750	6300	5900	5600	5300	5100	5900	5600	5350	5150	4950	4800
	75	6400	5750	5300	4950	4650	4450	5700	5250	4950	4700	4450	4250

Strutting/hanging beam AS 4055 classification C1 - C3

Ceiling load width (mm)		1800						3600					
Roof area supported (m ²)		2	4	6	8	10	12	2	4	6	8	10	12
Member size DxB (mm)	Roof mass (kg/m ²)	Maximum strutting/hanging beam span (mm)											
140x45	40	2600	1950	1300	NS	NS	NS	2200	1950	1300	NS	NS	NS
	75	2250	1750	1300	NS	NS	NS	2000	1650	1300	NS	NS	NS
190x45	40	3700	3100	2300	1700	NS	NS	3150	2800	2350	1700	NS	NS
	75	3300	2700	2250	1700	1100	NS	2900	2450	2150	1700	1100	NS
240x45	40	4500	4050	3600	2650	2100	1300	3900	3700	3400	2700	2150	1350
	75	4200	3650	3150	2600	2100	1650 ₅	3750	3300	2950	2550	2100	1600 ₁₀
290x45	40	5250	4800	4450	3800	3000	2500 ₅	4550	4300	4050	3850	3050	2500 ₅
	75	4900	4300	3950	3650	3000	2500 ₁₀	4350	4000	3700	3450	2900 ₅	2450 ₁₅
300x45	40	5400	4950	4600	4050	3200	2650 ₅	4700	4450	4200	4000	3250	2700 ₅
	75	5050	4450	4050	3750	3150	2650 ₁₀	4500	4100	3800	3600	3100 ₅	2600 ₁₅
360x45	40	6250	5750	5350	5050	4550	3750 ₅	5400	5150	4900	4700	4500	3800 ₁₀
	75	5900	5250	4800	4450	4200 ₅	3700 ₁₅	5200	4800	4500	4250	4050 ₅	3650 ₁₅
2/140x45	40	3400	2800	2250	1950	1750	1450	2850	2550	2250	1950	1750	1450
	75	3000	2400	2050	1800	1650	1500	2650	2200	1950	1750	1600	1450
2/190x45	40	4450	4050	3600	3100	2800	2550	3900	3650	3400	3100	2800	2550
	75	4150	3600	3150	2800	2550	2350	3700	3300	2900	2650	2450	2250
2/240x45	40	5350	4900	4550	4300	3950	3600	4700	4400	4200	4000	3850	3600
	75	5050	4450	4050	3750	3550	3300	4500	4100	3850	3600	3350	3150
2/290x45	40	6200	5750	5400	5100	4850	4650	5450	5150	4900	4700	4550	4400
	75	5850	5250	4800	4500	4250	4050	5250	4850	4500	4250	4050	3900
2/300x45	40	6400	5900	5550	5250	5000	4800	5550	5300	5050	4850	4700	4500
	75	6050	5400	4950	4650	4400	4150	5400	5000	4650	4400	4200	4000
2/360x45	40	7300	6850	6450	6150	5900	5650	6400	6100	5850	5650	5450	5300
	75	6950	6350	5850	5500	5200	4950	6200	5800	5450	5200	4950	4750
140x63	40	3000	2300	1800	1350	NS	NS	2500	2200	1850	1350	NS	NS
	75	2600	2050	1750	1350	NS	NS	2300	1900	1650	1350	NS	NS
190x63	40	4050	3650	3000	2400	1900	1500	3550	3200	2950	2450	1950	1550
	75	3750	3100	2650	2350	1900	1600	3300	2850	2500	2250	1900	1600
240x63	40	4900	4450	4150	3700	2950	2450	4300	4050	3800	3600	3000	2500
	75	4600	4000	3650	3300	2950	2450	4100	3750	3400	3100	2850	2400
290x63	40	5700	5250	4900	4600	4200	3500	4950	4700	4450	4250	4100	3550
	75	5350	4750	4350	4050	3800	3500	4800	4400	4100	3850	3650	3400
300x63	40	5900	5400	5050	4750	4450	3700	5100	4850	4600	4400	4250	3800
	75	5500	4900	4500	4150	3950	3700	4900	4500	4200	3950	3750	3600
360x63	40	6750	6300	5900	5600	5300	5100	5900	5600	5350	5150	4950	4800
	75	6400	5750	5300	4950	4650	4450	5700	5250	4950	4700	4450	4250

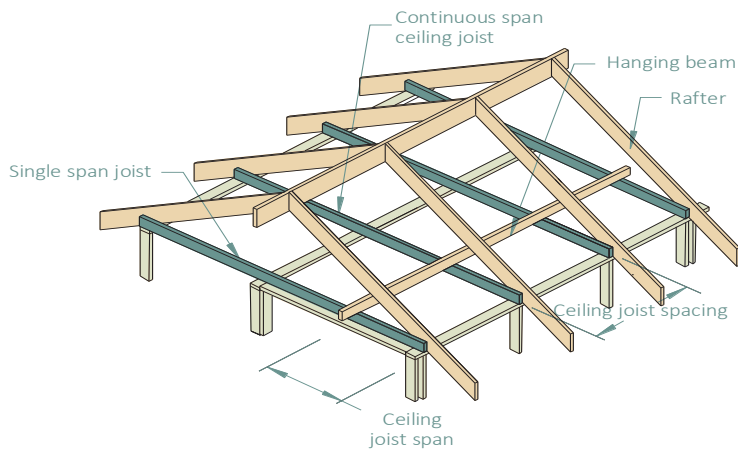
NOTES:

1. D = member depth, B = member breadth, NS = not suitable.
2. The above table was based on a maximum ceiling mass of 20 kg/m²
3. Minimum bearing length = 70 mm at end supports. Subscript values indicate the minimum additional bearing length
4. Top edge of strutting/hanging beams with D/B > 3 shall be laterally restrained as per detail on page 9
5. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

Ceiling joists

AS 4055 wind classification N1- N4 and C1- C3

Ceiling mass 20 kg/m²



EXAMPLE:

wind speed = N4
ceiling mass = 20 kg/m²
ceiling Joist span = 4500 mm (single span)
ceiling Joist spacing = 450 mm

Enter single span table at 450 mm in joist spacing column, read down to a span equal to or greater than 4500 mm

ADOPT:

SmartLVL 14 - 140x45

Ceiling joist spacing (mm)	450	600	900	1200	450	600	900	1200
Member size DxB (mm)	Maximum recommended single span (mm)				Maximum recommended continuous span (mm)			
90x45	3200	3000	2600	2400	4400	4000	3400	2800
140x45	4800	4500	4000	3700	6100	5800	5200	4400
190x45	5900	5600	5200	4900	7400	7100	6600	6000
240x45	6900	6600	6100	5800	8700	8300	7700	7300
290x45	7800	7500	7000	6600	9800	9400	8800	8300
300x45	8000	7700	7200	6800	10000	9700	9000	8500
360x45	9000	8600	8100	7700	11200	10900	10200	9700 ₁₀
90x63	3500	3300	2900	2700	4800	4400	4000	3400
140x63	5100	4900	4400	4100	6400	6100	5700	5300
190x63	6200	6000	5600	5300	7800	7500	7000	6600
240x63	7200	7000	6500	6200	9100	8800	8200	7800
290x63	8200	7900	7400	7100	10200	9900	9300	8900
300x63	8300	8000	7600	7200	10400	10100	9500	9100
360x63	9300	9000	8500	8200	11700	11400	10700	10300

NOTES:

1. D = member depth, B = member breadth
2. Do not walk on joists during construction unless a construction plank is in place or overbatten, minimum of 35 x 70 F5
3. Minimum end/internal bearing length of 70 mm
4. Not all sizes of SmartLVL in this table are stocked in each state. Please check with your supplier before ordering.

SmartFrame Warranty

All SmartFrame Engineered Wood Products (EWP) are covered by our SmartFrame warranty against material and workmanship defects and are guaranteed to perform as specified when stored, installed, and finished in accordance with SmartFrame installation instructions.



Scan for more
SMARTLVL 14
information



Sales 1800 33 77 03
Technical 1300 66 86 90
www.tilling.com.au

